The Dental Digest.

Vol. I. CHICAGO, SEPTEMBER, 1895. No. 9.

Original Contributions.

SUGGESTIONS ON DEVELOPING AND CONDUCTING A DENTAL PRACTICE ON BUSINESS PRINCIPLES.

By J. N. Crouse, D. D. S., Chicago.

[Continued from page 452, No. 8, Vol. 1.]

In our last article we discussed methods of treatment for very young patients, in cases where none of the permanent teeth had yet erupted, giving reasons why the temporary teeth should be kept in the mouth until the permanent set are ready to occupy their places. We made the claim that during the services then peformed the child's training should be begun and the cooperation of the parents should be enlisted. As a rule the assistance of the parents is easily secured when their interest is once aroused. There is a certain kind of information that they can get from their dentist only, and this for the most part verbally, for the reason that there is scarcely any printed matter which will enable them to inform themselves on the subject. There have been spasmodic efforts on the part of different societies to furnish matter, resulting in pamphlets being printed and issued by the members to their patients, but the real needs have not as yet been supplied.

This question of popular education on the subject of dentistry has also been urged from time to time by individual members of the profession, and now and then a practitioner has distributed leaflets to his patients, but this has often drifted into a violation of professional ethics, bringing the author into disrepute with his colleagues. We are convinced that this much-needed and much-desired instruction on the proper care of the teeth, and especially on the care and treatment of children's teeth, must come from the

practitioner while at work at the chair. There is a great lack of definite information on this subject on the part of the community, not because there is not a desire, but because means of getting it are so imperfect that it is almost impossible to acquire it. There is nothing for which parents are more eager and anxious than to have their children possess a good set of teeth, and they greatly appreciate any information and advice which you give them. Mothers realize the importance of a good set of teeth in a child's mouth, both for beauty and for usefulness, and a proper training to secure them is one of the great needs of the age. The breath, if made foetid by diseased teeth, must be injurious to the lungs and blood as well as offensive to all, its owner included. As decay of the teeth and diseases of the mouth are increasing yearly, causing abscesses, facial deformities, neuralgia, dyspepsia, headaches, eye and ear troubles, etc., it is about time both parents and dentists try to better the existing conditions.

We have already urged in the DIGEST the co-operation of the practitioners with us, so as to collect the proper information for distribution among the people at large. If we can have articles written upon this subject, we will edit and reprint them in book form for the dentists to furnish to their patients, thus helping them both. Much additional care and service would be given, the teeth and general health of the community would be improved, and our profession would reap a rich reward in a greatly increased amount of work. We think we are justified in saying that few practitioners do everything for their patients that should be done. To take proper care of a child from the beginning of second dentition to maturity is no small task. To see to it that the teeth are in proper position in the mouth, well cared for, and in good chewing condition when the patient reaches twenty-one, requires more painstaking effort on the part of both operator and patient than either give as a rule.

We have already urged the treatment and care of the first teeth, both to secure proper mastication of food and to assist in producing regularity in the second set. What proportion of dentists take pains to give the parents of all the children they work for the information they need? How many parents are well informed concerning even those things which seem to the dentist too simple to be explained? Ask the average parent how many teeth there are

in the first set and see what answer you will get. Then tell him or her that there are but twenty, and that all the molars which come back of these twenty are permanent teeth and should be carefully watched, and note the look of surprise. No more frequent mistake is made by the parent than that of allowing the sixth year molar to decay, supposing it to be a temporary tooth. How many operators caution parents on this point before it is too late? How many urge frequent examinations, especially in the case of children?

All through childhood children should go to their dentist every few months; if they neglect to do so he should send for them. Parents do not know that as soon as the sixth year molar is erupted it generally needs some attention, which if given in time saves much trouble. These teeth being the first of the permanent set and coming as they do about the sixth year, the child is so young that but little care is taken to keep them clean, and often decay has made considerable progress in the imperfect fissures before the teeth are fully erupted. Had they been attended to at the proper time, a moderate amount of care would have arrested the caries and kept these valuable organs in good condition, but from neglect the pulps have become exposed, and the teeth either been extracted or the chances of saving them lessened.

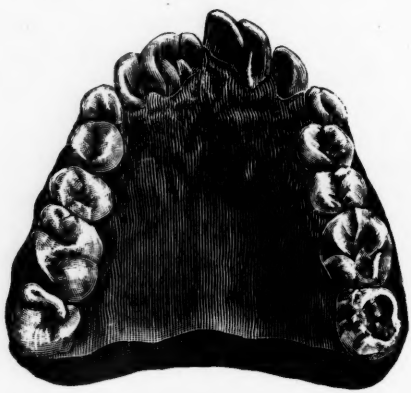
If, when these teeth are first erupted, the open and defective fissures, so common at this early time of life, are filled with tin, oxyphosphate, or even amalgam, they can be kept in a fair state of preservation until ossification is more complete, when a better filling can be made and the organs preserved. And if we are doing our duty all this time, we are instilling habits of care and cleanliness which will be of invaluable benefit in the way of lessening dental caries, and, as we have stated in previous articles, no greater or more valuable service can be rendered by us. If the tendency to decay is very pronounced we should look into the causes, and the chances of improving this condition are most likely to be found in the methods of living. A most important duty is then before us, that of regulating the patient's diet, which will be discussed in the next article.

(TO BE CONTINUED.)

AN INTERESTING CASE IN PRACTICE.

By A. H. Peck, D.D.S., M. D., Chicago.

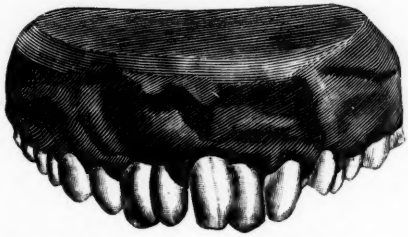
A boy, about twelve years old, presented with both his upper central incisors double. A large cavity had formed in the middle of the left central, extending through from the labial to the lingual surface. Each of these halves of the tooth possessed a separate and distinct root. The plates of enamel of the two parts were united near the incisal edges, also at the cervix, the union being perfect. The two parts had evidently been united through-



out the entire length of the crown, the union being more or less imperfect, no doubt, previous to the formation of the carious cavity. In the mesial half of this double tooth the pulp was dead; in the distal half it was alive. The cavity had developed to such an extent that it was impossible to tell whether the coronal portions of the pulp-chambers had been united at first, or whether they had always been separated from each other. However, there is no doubt in my mind but that the latter condition had existed.

The two parts of the right central were united only at the cervical portion. A cavity had also developed in the centre of this tooth, but not to so great an extent as in the other. The pulps were not exposed in either part, and the coronal portions had positively never been united. From a careful test with heat the

pulps were found to be alive in each part. The roots of this tooth, as nearly as could be determined from the examination it was possible to make, were united for a considerable distance towards



the apices. This case is very interesting since, so far as I know, it is the only one of its kind on record. Excepting for these two double teeth, the others were normal in shape and number.

WEIGHT EQUIVALENTS.—To convert grains into grammes, multiply by 0.065; to convert grammes into grains, multiply by 15.5; to convert drachms into grammes, multiply by 3.9; to convert ounces (avoir.) into grammes, multiply by 28.4; to convert pounds into grammes, multiply by 453.6.

DANGERS OF ATHLETIC SPORTS IN CHILDHOOD.—M. Le Gendre, of Paris, in an article on this subject, showed that the period of growth created certain morbid predispositions, as a tendency to excessive arterial tension, manifested by palpitations, epistaxis, pains in the head; in arthritic individuals, susceptibility to chill when the body is in a state of perspiration; in neuro-arthritic persons, a tendency towards atony of the stomach, increased by the abundant ingestion of fluids; in others, of nervous temperament, a predisposition to headaches, tics, chorea, and a craving for violent distraction. Under such conditions it is easy to understand how excess in physical exercise may be followed by serious consequences. After violent games of foot-ball, tennis, or the too prolonged use of the bicycle, the fever of over-exertion may supervene, with the complications that accompany it, as prostration, curvatures, pain, osteomyelitis, dyspepsia with great anorexia, dilatation of the heart, palpitations, syncope, true asystole, and possibly hypertrophy, articular inflammation, or typhlitis. The author therefore believed it of great importance for parents to have their children examined before allowing them to give themselves up to any particular sport, and to forbid it if there be any trouble of the circulatory, locomotor, digestive, or nervous system; to insist upon progressive and gradual increase of the exercise, whatever it be; and, while encouraging athletics and gymnastics, to forbid any competition in these sports.—*Revue des Maladies de l' Enfance in Ann. of Hyg.*

TO CURE THE TOOTH ACH.

COPIED BY C. F. BESORE, D.D. S., IDA GROVE, IA., FROM VARLO'S HUSBANDRY, PUBLISHED 1785.

Let the party that is troubled with the tooth ach lie on the contrary side, and drop three drops of the juice of rue into the ear on that side the tooth acheth, and let it remain an hour or two and it will remove the pain. If a needle is run through a wood louse, and immediately touch the aching tooth with that needle, it will cease to ach. Sometimes the tooth ach proceeds from a cold, so that the air gets between the gums and the teeth and raises them out of the socket, which causes a very great pain though the teeth be all sound. The cure in this case is to press a cork very hard between the teeth a considerable time to press them down even, and rub the gums with gun powder until they bleed.

May dew gathered from corn is also given as a specific for removal of freckles.

A POCKET EXPLOSION.—On the morning of Saturday, Jan. 19, Dr. Davidson was called to see a patient and found him suffering from an extensive burn of the inner surface of the left thigh, with another burn of smaller extent, but more severe, extending over the thenar half of the left palm. The history of the injury elicited was that the patient had been suffering from sore throat and had purchased some chlorate of potash lozenges. These he was carrying in his trousers pocket rolled up in a piece of paper. One of the lozenges was loose in the pocket, which also contained a box of safety matches. While moving about he suddenly heard a noise like the hissing of a squib before the detonation, and saw smoke issuing from his pocket, which he grasped from the outside thinking to smother the fire. An explosion followed which blew out the whole of the front of the trousers leg. There was no loud noise, only an exaggeration of the hissing noise heard at first, but there was a considerable volume of flame. What had evidently happened was that the loose lozenge, by rubbing on the composition on the outside of the box of safety matches, had become ignited, and that the rest of the lozenges had been exploded by it, causing the chief explosion. On the room being searched the remains of several of the lozenges were found. They had been reduced to about a third of their normal size and the outside of them appeared scorched. The patient had fully one ounce of the lozenges in his pocket at the time of the occurrence. On January 25 the wounds were healing rapidly and were almost entirely covered with new epidermis.—*Lancet.*

Digests.

Items of Interest for August, 1895.

"Refitting Plates," by J. E. Davis, B. S., D. D. S., Columbus, O. Instead of sawing out the palate of the plate I simply scrape it thoroughly to cause the new rubber to adhere firmly to the old plate. I have also removed the old plate entirely from the teeth after placing the case in an articulator and building plaster on the opposite half of articulator till the grinding surfaces of the teeth are slightly imbedded. The teeth can easily be placed in their imprints in the plaster, and of course they are in exactly the same position as before removing them from the old plate. The new model on opposite half of articulator will be in correct position to retain the former articulation of teeth. After waxing teeth to model a trial in the mouth is best. This gives an entire new plate on the old teeth and no danger of blackened joints, as they can be cleaned while removed from old plate. These methods take but little more work than repairing a case, while the result is equal to a new denture for the patient. Maroon-rubber is best in this work as it flows easiest and adheres best to an old plate. Many patients insist on having a denture soon after their teeth are extracted, and it may be very loose, but can be refitted in the above manner. In three months the operation may again be needed. I have repeated it three or four times on the same plate. It is equally useful for upper and lower dentures.

"To Make Plates of Uniform Thickness," by D. W. Barker. The first essential is a base plate of the right thickness and perfectly smooth, and which will retain its thickness and smoothness, and no wax should be added to it. Wax base plates will not answer these requirements as they are too easily marred. Old modeling compound is just right, works as easily as wax, retains the shape of the model, and will not bend out of shape. While soft, press it out to the required thickness (1-12 inch) between sheets of glass slightly soaped to prevent sticking. A cutter made of tin, like a cake-cutter, is very handy for cutting out the forms. If an air chamber is to be used, the lead form should be put on the model before the base plate, and to prevent the edge of the metal

from cutting through the base plate it should have its edge beveled down thin, or a line of stiff wax run around the edge beveling to the model. The plate will be as smooth as the glass, of uniform thickness, and easily finished.

"SOME INTERESTING SUGGESTIONS," by D. Scott Thomas, Somerset, O. The ground surface of a piece of a plate glass is a very satisfactory surface from which to pick up pieces of amalgam for filling. There are rare cases in which the shape or size of an excavator will suit better than any amalgam carrier for carrying a piece of amalgam to the cavity, and you can pick up pieces of amalgam with the smooth surface of an excavator or flat burnisher by gently pressing them on it with a sliding motion.

The easiest way to extract a badly boken down superior molar is to divide it on a line between the palatine and the buccal roots, using large sized spear pointed and fissure drills in the engine, then insert one beak of the forceps in the place drilled and remove the roots separately.

After making the wax base-plate as smooth as possible by quick puffs of flame with the blow-pipe, you can, after it cools, give it a fine polish by stroking gently with the finger.

The most simple and convenient way to keep rubber from entering the joints of gum sections is to jar the filled flask before putting on the top, lifting and setting it down hard enough on the work-bench to cause the joints to fill with plaster from the outside. If they have not entirely filled, put a little thin plaster-of-paris on the inside of the joints immediately after scalding the wax from the pins while the case is still wet.

The Dental Cosmos for August, 1895.

"SUCCESSFUL TREATMENT OF A CASE OF GUNSHOT WOUND OF THE LOWER JAW, CAUSING COMPOUND COMMINUTED FRACTURE," by R. G. Beale, D.D. S., Phila., Pa.; read before the Penna. Ass'n. of Dental Surgeons. The case was that of Dr. K., who was awakened from his sleep to find a burglar pointing a pistol at him. He arose to a sitting posture, and as he did so the man fired, the bullet striking the doctor in the right cheek, passing obliquely downward without injury to the upper jaw, striking the crown of the lower first molar, passing completely through the body of the

bone, driving the anterior root of the tooth into the basilar portion of the jaw, the bullet lodging in the neck, and causing a compound comminuted fracture of the lower jaw.

Upon reaching the hospital, I found the patient had been shot five days previously; the ball had been extracted from the neck, and a drainage-tube inserted. An examination of the mouth showed a perfect denture, excepting the first molar, which had been shattered to pieces, and considerable laceration of the gums. The second and third molars were very loose and leaning toward the tongue; crepitation and displacement were well marked. Owing to the swollen and tender condition of the side of the face and neck, a more minute examination could not then be made. An upper impression was taken. Before taking the lower, the fracture was reduced and held in position by an assistant. The fragments acted admirably as a wedge to hold the arch of the jaw in position, and aided in securing a sharp impression. For this purpose modelling compound was used, with the surface oiled to insure sharpness. Casts were obtained from the impressions, the lower cast cut at the place of fracture, and the sections thus made so arranged as to antagonize pertectly with the upper teeth. A splint of vulcanite spanning the fracture was made on these casts, thus holding the loosened teeth in place. It extended to the third molars on the opposite side, and terminated so as not to impinge upon the gums. The usual opening was made in front for feeding, and a portion of the rubber cut away along the cutting edges of the upper and lower front teeth to ascertain when the splint was in position. A day later the splint was introduced and bandaged securely in place. After consultation it was decided to remove the fragments of bone. The patient was etherized and the fragments removed posterior to the second bicuspid and anterior to the second molar, including the roots of the first molar and part of the internal and external alveolar plates of the second and third molars, making in all ten pieces of bone. The fracture proper measured at the alveolar border one inch and a quarter, and at the basilar border three-quarters of an inch, including one inch of the inferior dental nerve and artery. The second and third molars were pressed into place, the wound was thoroughly cleansed, and the splint and bandage placed in position. The operation of removing the bone was rather premature, as only five

days had elapsed since the time of the assault, and hence exfoliation was only partial. Part of the periosteum and the attachment of the mylo-hyoid muscle clung to the bone, but did no harm, as granulations formed promptly and the wound healed rapidly. The lower jaw could not be held very firmly in the splint, owing to pressure made by the bandage on the swollen side of the face and neck.

Five days later a sub-mental splint of vulcanite and a compress of wood were put on and held in position by a bandage spanning the swelling. The compress consisted of a piece of wood five inches long and one and one-half inches wide, with a crescent shaped depression cut in the back to accommodate the throat, and extending out on each side of the face, to allow the bandage to span the swelling. From each side of the board a piece of surgeon's webbing was attached, which was buckled to a cap covering the top of the head. With this form of compress and bandage direct pressure could be made on the jaw without inconveniencing the patient. By the device of fitting beneath the chin a compress, the ends of which extended beyond the point of greatest convexity of the cheeks, all lateral pressure from the bandage was avoided and entire comfort to the patient secured. From the parts being held quiet and in perfect position, thorough union was accomplished, and the splint and bandage were removed in twenty-eight days, which was remarkable, considering the great amount of granulation-tissue required to fill the space. The occlusion of the teeth was normal. It is most interesting to note that the severing of the inferior dental nerve and artery did not result in the death of any of the nerves of the teeth, but merely in a partial loss of sensation for a short time on the right side of the face. The cicatrix which formed after removal of the drainage-tube was about the size of a small marble. The patient, by manipulation with the thumb and finger, brought about absorption of this lump in a short time.

A very quick way to make a splint is to mold the rubber directly on the tin-foil covering the casts, and fill the space between the jaws with a piece of rubber, leaving the opening in front. The indentations in the rubber should be covered with a thin layer of clean wax. In vulcanizing the rubber this will take the place of the wax and give its surface a smooth finish. For this case a sub-

mental splint was made of vulcanite on a cast taken from an impression of the chin. Sub-mental splints of this material can be used universally. If too small for a case, it can be very readily molded by heating and bending; if too large, a layer of soft modeling compound can be laid inside and molded to the chin. If direct pressure is necessary at any one point, place a layer of compound where needed, and have the inner side well padded with cotton.

"RHIZODONTRYPY, OR HULLIHEN'S OPERATION," by Dr. S. B. Brown, Ft. Wayne, Ind., read before the Tri-State Meeting at Detroit, June 18, 1895. Fifty years ago Dr. S. P. Hullihen devised an operation for the surgical treatment of dental pulps, which consisted in drilling through the gum and alveoli, a line within the margin of the latter, into the pulp-canal, either before or after filling operations, for the relief of exposed or congested pulps. Where life remained the purpose was to give vent only, wounding the pulp as slightly as possible, aiming to preserve its vitality, the gum acting as a valve for its further protection. The drill was usually driven with a bow and slack cord.

The writer had revived this fragment of history because of its bearing on the problem how best to preserve the deciduous teeth. In the treatment of these teeth with pulp-complications, he had, several years since, re-adopted the operation of rhizodontrypy with modifications, the results being more satisfactory than with any other line of treatment. The method consists in thoroughly removing the pulp tissue or its debris, when exposed, when the cervix is perforated on the mesio-buccal surface one-sixteenth of an inch within the gingival border through to the floor of the pulp-chamber; the cavity being prepared, a disk of lead properly adapted is placed on the cavity-floor to prevent obstruction to the vent which the perforation affords; then filling completes the work. Thus treated, the organ of resorption performs its natural function without interruption, and childhood is dentally blessed to the limit of nature's plan. In the treatment of pulpitis in permanent teeth, where extreme inflammation prevails, rhizodontrypy can be employed to great advantage over the method of drilling through the crowns or fillings, as with it the minimum of vibration results.

DISCUSSION: Dr. J. Taft. The operation consisted in simply perforating the root of a tooth into its pulp-chamber, wounding the pulp, thereby depleting it and causing its contraction. Although teeth having pulps exposed by decay were treated in this way, in a great many instances with decided success, the results were more promising where the pulp was exposed by excavation, where it was well nigh exposed, but covered with a thin line of undecayed dentine. In these last cases, where the introduction of a filling would be likely to be attended with unfavorable results, Dr. Hullihen claimed that by the adoption of this method, in almost every instance, the pulp would be saved in a state of, to say the least, comparative health and vitality.

Dr. W. C. Barrett. We know that you cannot penetrate the pulp with a dental drill, or spear, or anything of that kind, without the most serious consequences, and the performance of this operation can be nothing more than the opening of a vent-hole; it simply furnishes drainage. We know that, according to our pathological laws, there cannot under ordinary circumstances be any such thing as the recovery of a pulp after it has been pierced by a drill at the gum-margin.

Drs. Louis Ottofy and H. J. McKellops thought that there was no need to revive this operation, inasmuch as it could hardly be successful, and there were many methods preferable to it.

Dr. Brown. I was talking of the treatment of deciduous teeth, after the pulps are removed and the canals cleansed, and had no reference to perforating teeth that had pulps, dead or alive. I have resorted to this for years with decided succcess. The deciduous teeth are saved and there is no inflammation in the root; the child can masticate, the roots are absorbed, and the teeth thrown off at the proper time.

"THE RELATION OF ADENOID VEGETATION TO IRREGULARITIES OF THE TEETH AND ASSOCIATE PARTS," by Dr. G. F. Eames, Boston; read before the American Medical Association at Baltimore, May, 1895. (1) While mouth-breathing is usually attendant upon adenoid growths, this is not always the case; while, on the other hand, mouth-breathing may exist without the presence of adenoids, or it may be due to a chronic hypertrophy of the turbinated bodies, or some septal deformity. (2) The adenoid growth rarely

fills the pharyngeal space so as to obstruct breathing, but mouth-breathing *results* from the irritation which it produces. (3) Mouth-breathing does not produce adenoid vegetations. (4) Mouth-breathing does not cause irregularities of the teeth. (5) Many cases present deformed arches and irregular teeth in which no adenoids existed.

It is argued by G. MacDonald that nasal stenosis is a constant factor in post-nasal growths, and that this being the case, "as long as respiration is conducted through the nose, there is, of a physical necessity, a diminution in the barometric pressure behind the seat of stenosis. This inevitably results in more or less overfilling of the blood-vessels, which, in its turn, leads to hypernutrition and hypertrophy." It is obvious that, when the diaphragm is depressed, the mouth closed, and the nose partially closed, there is more or less suction produced which would invite blood in extra amounts to the pharyngeal region, but, according to my observations, patients breathe through the mouth, both by instinct and force of habit, even when it is possible to breath through the nose. The swollen turbinates, with their rich supply of nerves, readily convey a sense of suffocation to the brain, and the mouth is immediately opened. Moreover, the mouth opens so readily, upon so little provocation from the nasal irritation and stenosis, that it does not seem possible that sufficient "diminution of the barometric pressure" can be produced in the pharyngeal vault to cause a growth of tissue. Again, if this be true, we ask why the growths are so often pedunculated while the pressure is exerted equally in all directions. This view also necessitates nasal stenosis to begin with; but it is generally understood that the enlarged turbinates are the *result*, not the *cause*, of adenoids, and observation shows that the nasal obstruction gradually disappears after the removal of the growth. Again, this will not account for the congenital growths, and those in infants whose oral respiration has been established only a few weeks or months; and still again, those cases of nasal stenosis of long standing in which there is no adenoid hypertrophy.

It has been said that adenoid growths in the pharyngeal vault cause irregularities of the teeth. I do not believe this to be the case, but rather that the dental irregularities are only another expression of the same cause that operates to produce the adenoid

growth; in other words, there is one cause common to both, yet this cause may not be able in all cases to produce both. The bone-developing vital movement may be strong and active by inheritance, while the lymphatic glandular system is weak.

It has been stated that mouth-breathing necessitates a constant dropping of the lower jaw, which, in so doing, causes pressure of the masseter and other muscles upon the buccal surfaces of the upper teeth and consequent flattening of the lateral alveolar arches, and the projecting forward of the cuspids and incisors. I cannot believe that the dropping of the lower jaw produces pressure on the teeth in the superior maxilla. The lower jaw is approximated to the upper teeth principally by the masseter, temporal, and internal pterygoid muscles, and when the jaw drops by the relaxation of these muscles, and with it other muscles and tissues of the face, unless the mouth be opened to the fullest extent by action of the platysma myoides, digastric and other muscles, the tissues of the cheek are not put upon the stretch; in fact, the finger can be easily passed in between the teeth and jaw, without being sensible of any pressure upon it, provided the mouth is not opened widely. Moreover, it seems reasonable to conclude that the jaw is held suspended, not by the cheeks, but by the masseter and accessory muscles. The cheeks cover the jaws and the teeth loosely, with tissue to spare, and will, as a rule, admit of the jaws being opened to a considerable extent without separating the lips or stretching the cheeks, which is the case during sleep; therefore when the lower jaw relaxes sufficiently to let the air in through the mouth, it cannot put the tissues of the cheeks on the stretch, or draw them tightly against the teeth. Both observation and experiment will show that it is only necessary to open the lips slightly, in order to allow sufficient air to pass in by the mouth, and that all the tissues and muscles concerned are *in a a relaxed and flabby condition while mouth-breathing is going on.*

Bazin is quoted as advancing the idea that the weight of the tongue in the floor of the mouth would tend to expand the lower jaw beyond its normal limits. I would suggest, however, that if weight is the expanding force, how can it press laterally, since gravity would carry the tongue downward into the floor of the mouth, which would rather draw the sides of the jaw together.

But if it be the muscular force of the tongue, then it is easier to see how the teeth might be pushed outward.

Dr. Henri Chattellier, of Paris, calls attention to the bones of the head and face consequent upon obstructed nasal respiration. He points out that the air-cavities, as the frontal, sphenoidal, ethmoidal, and maxillary sinuses, being normally in communication with the air, cease to develop when the circulation of air through the nose is interfered with, and hence dimensions of the face are altered. Dr. E. S. Talbot says, "There are many cases of contracted arches where mouth-breathing does not exist; there are also many cases of normal arches where it is present." I firmly believe that this statement is entirely correct. Marked adenoid growths are sure to produce mouth-breathing and more or less nasal stenosis; but irregularities of the teeth and deformities of the arch are not at all certain to follow as a consequence, but are rather companions, due to a common cause. Dr. Talbot further says that in most cases the cause of these deformities is an arrest of development of the bones of the nose, and this produces mouth-breathing. While this may be so, I would call attention to the fact that the opposite condition exists as to the turbinated bodies, which are hypertrophied.

In 1879, Prof. Harrison Allen said, "Inasmuch as the face is the result of the lateral visceral half-arches joining the median structures, projected from the front of the brain-case, it follows that if there is want of harmony between the two genetic movements, errors of symmetry will readily occur." Explanation may thus be given of symmetry of the nasal chambers, the external nose, the two halves of either of the dental arches, entirely apart from the acquired defects in the same localities. Applying this hypothesis to practice, Dr. Allen had recognized a well-defined group of cases in which the nasal chambers remained, from birth, partially or entirely occluded. Also, that in cases of obstinate nasal catarrh in children from seven to eighteen years of age, in whom the upper permanent incisors were overlapping and convergent, the two halves of the upper dental arch more or less V-shaped, the tonsils tumid, the roof of the mouth with a high, narrow vault, the cause was deep-lying and congenital, and affected all the structures of the face. Dr. Allen has frequently noted the way in which the dental arch was narrowed and elevated in adults, in

whom no history of either adenoid disease or nasal obstruction was given. It should be noticed also that the upper incisors approach the vertical position, sometimes overlapping, in many cases of adenoid disease, while in thumb-suckers these teeth protrude from the mouth.

"Diseases of the Soft Parts of the Mouth and Ill-Developed Jaws," by Dr. W. S. Twilley, Baltimore, Md.; read before the same society. One cause of irregularity of the teeth is the resistance offered to the proruption of the permanent teeth by the temporary ones. Another frequent cause is a want of simultaneous action between the increase of the permanent teeth and decrease of the temporary ones by the absorption of the roots of the latter. When the permanent teeth are large and the growth of the jaws does not proceed proportionately, the teeth are found to crowd and overlap. By the premature extraction of the temporary teeth the jaws are liable to contraction; and when the permanent successors appear, there not being sufficient room in the arches, they will crowd and overlap. Frequently for the want of space, one or more of the permanent teeth will not appear until late in life, and then only when room has been made by the extraction of one or more of the permanent teeth. In some cases they never appear at all. The protruding lower jaw is at times produced by children sticking out their chins to "look funny," as they style it. This is done in their play, and finally becomes a habit, producing a deformity, although this deformity is more frequently produced by the injudicious extraction of some of the upper teeth without taking care to secure a due proportion between the upper and lower jaws. Again, where the upper incisors extending inward come in contact with the lower centrals on closing the jaws, the child finds it easier and more comfortable to throw the lower jaw forward. This finally becomes habitual, and promotes the increase in the length of the lower jaw itself. The almost universal acceptance of the theory that the premature extraction of the deciduous teeth or the extraction of the permanent ones are the only causes of irregularities, is a great error in the opinion of the essayist. The prolonged use of the "fraud" and the greater evil of thumb-sucking are to be regarded as more serious causes of deformity. Enlargement of the tonsils and

hypertrophies of the nasal chambers interfere with proper respiration. As a result, respiration is carried on more or less through the mouth, which results in a slight contraction of the muscles about the nose and mouth, which helps to increase the deformity of the oral arch.

The nasal septum being rarely perpendicular, is deflected to the one side or the other. Only in skulls with the flat or normal palate is the nasal septum most apt to be perpendicular, but in those having the inverted V-shaped palate either the septum must be greatly deflected or pressure upon the vomer will push the perpendicular plate of the ethmoid bone forward, thus causing that external protrusion characteristic of the Roman nose. The cause of this abnormal formation of one of these structures *pari passu* with that of the other is ascribed by Professor Allen to "an inflammatory condition of the walls of the oro-naso-pharyngeal space, this producing tension of the muscles, thus pressing the lateral portions inward, contracting this space, thereby deforming the roof of the mouth and changing the natural dome shape to the inverted V-shape." It is therefore important that we recognize and early in life guard against the evil results of the inflammation of the antrum and throat in children, troubles generally described as catarrh and tonsilitis.

"CALCIFICATION OF THE TEETH," by Dr. R. R. Andrews, Cambridge, Mass.; read before the same society. Calcification is a process by which organic tissues become hardened by a deposition of salts of lime within their substance. In the intercellular tissue and in the substance of the cells themselves these salts are deposited by the rich blood-supply always near. They are deposited in minute particles, and in such fine sub-divisions that it makes it difficult to demonstrate many of them, even with the higher powers of the microscope. The intercellular substance, either a protoplasmic or gelatinous fluid or semi-fluid, contains the lime particles. In it they change their chemical nature, uniting with the organic substance of the part, and form small globular bodies, which have been called calcospherites; and these, blending or coalescing into a mass, form a substance called calco-globulin. This, which is a lifeless matter, has been deposited through the cells into a gelatinous substance, and in some cases into the sub-

stance of the cells themselves, where, by a further hardening process, it becomes the fully-calcified matrix.

Mr. Rainey, Prof. Harting and Dr. Ord say, "If a soluble salt of lime be slowly mixed with another solution capable of precipitating the lime, the resultant lime-salt will go down as an amorphous powder and sometimes as minute crystals. But when the lime-salts are precipitated in gelatin or albumen, the character of the lime-salts is materially altered. Instead of a powder, there were found various curious but definite forms, quite unlike the character of crystals or powder, produced without the intervention of the organic substance." Mr. Rainey found that if carbonate of lime be slowly formed in a thick solution of albumen, the resultant salt has changed its character; it is now in the form of globules, laminated like tiny onions. These globules, when brought in contact with one another, become agglomerated into a single laminated mass, it appearing as if the laminae in immediate apposition had blended with one another. The globular masses, at one time of mulberry-like form, lose the individuality of their constituent smaller globules and become smoothed down into a single mass or layer, and Mr. Rainey suggests, as an explanation of the laminated structure, that the smaller masses have accumulated in concentric layers, which subsequently coalesced; and in the substitution of the globular for the amorphous or crystalline forms in the salt of lime, when in contact with organic substances, he claims to find the clue for the explanation of the development of shells, teeth, and bone.

The most important addition to our knowledge made by Prof. Harting lay in the very peculiar constitution of the "calco-spherite," by which name he designated the globular forms seen and described by Rainey. That these are built up of concentric laminae, like an onion, has already been stated, and Mr. Rainey was aware that albumen actually entered into the composition of the globule, since it retained its form even after the application of acid. But Prof. Harting has shown that the albumen left behind after treatment of a calco-spherite with acid is no longer ordinary albumen; it is profoundly modified, and is become exceedingly resistant to the action of acids, alkalies, and boiling water. For this modified albumen he proposes the name calco-globulin, as it appears that the lime is held in some sort of chemical combination,

for the last traces of lime are retained very obstinately when calco-globulin is submitted to the action of acids. It is a very remarkable fact that microscopic glistening specks and globules are constantly seen at the edges of tissue where enamel, cementum, dentine, or bone are to be formed or are forming.

Robin and Magitot have described isolated spherules of lime-salts as occurring abundantly in the young pulps of human teeth, as well as in those of other animals, and Tomes suggests that perhaps all deposits of lime-salts commence in this way. These microscopic, globular bodies have been called calco-spherites, and it appears as though some such process as described by Prof. Harting is transpiring within the substance of the tissues where bone, dentine, or enamel is to be formed. It will be noticed that near this point of formation there is always to be found a rich capillary blood-supply, and from this the lime-salts are given out. As I have said, near the forming matrix the tis sue is seen to be full of these microscopic, glistening bodies,—the minute atoms which are often spoken of as granules. The abundant appearance of these globules at the time of the formation of the enamel, and their entire absence at earlier stages, is to me an indication that the globules are an enamel-substance, the matrix-forming calco-spherites; and following up their future confirms this. Many of them are so small as to be scarcely measurable: they are almost always spherical. The lower part of the cell toward the dentine contains the larger globules.

The growth of the enamel-rod, once begun, takes place by additions of these globules. I am convinced that the larger ones are composed of hundreds of the smaller ones, which have coalesced into the main mass. When enamel is commencing its process of calcification, if we examine carefully with high powers a tissue that has been properly prepared, so that there shall be the smallest amount of shrinkage, we shall find, in that slight amount of the enamel-organ that is directly over the calcified point of dentine, in what remains of the stellate reticulum and in the stratum intermedium principally, a very large number of glistening points. Most of these are minute,—microscopic, in fact. They are the forming calco-spherites, or, rather, they are the minute particles of lime from the blood-supply, changing their chemical nature as they pass into the protoplasmic juices of the part. These

appear to be passing into the formative cells, and these cells superintend their formation into enamel-rods,—that is, they are laid from the cell against the forming rod. Within the substance of the ameloblasts they are seen to be growing larger by the smaller ones coalescing with others. If at this point of their development the layer of enamel-cells is pulled away from the cap of formed dentine, we shall see that the cap of dentine is everywhere covered with quite regularly formed globular bodies. If, on the other hand, the layer of enamel-cells is against the formed cap of dentine, the masses are assuming block-like forms, as though taking the form of the future enamel-rod. They appear to be in a gelatinous substance which is between the dentine and the enamel-cells, and here, by an unknown chemical hardening process, they become the hardened columns of the enamel.

In dentine the calcifying process goes on in much the same manner. The odontoblasts are merely masses of protoplasm, and appear to have no membrane; as is the case with the ameloblast, it has a nucleus at a point farthest from the calcifying matrix. In forming the dentine matrix, the odontoblast, or the pulp-tissue through the odontoblast, gives out a rich gelatinous substance about as wide as the layer of odontoblast-cells. Everywhere between the odontoblasts, as Mummery has demonstrated, is found a rich supply of connective-tissue cells, whose function appears to be the forming of a net-work of connective-tissue fibres into this gelatinous substance, this net-work seeming to be a scaffolding upon which the calco-spherites, which are to form calco-globulin, are to be deposited. Into this layer the odontoblasts are also superintending the placing of the minute globules which are within them, and which have been given to them by the rich blood-supply found everywhere near their pulp-ends. Into the gelatinous substance the globules form against the calcified matrix,where, fusing with others, they form a mass, entirely filling the gelatinous substance. This gelatinous substance, with its mass of globules, now becomes calco-globulin. By some natural hardening process it then becomes calcified matrix, and thus another layer of calcified matrix is formed,

We must remember that it takes a large number of sections to show these various stages of growth. Each section shows the picture at the point where death of the part has left it, another

section will show another stage, and so on. In one section we shall see the odontoblasts against the gelatinous layer, with the globules within it. Another section will show an entire absence of the gelatinous layer, with pear-shaped cells a little away from the calcified matrix, and with portions of cells clinging to the calcified matrix, found here and there, that look like odontoblasts. Another section will show the globular masses filling up the gelatinous layer just before a new layer of calcified matrix is formed.

I am convinced that the calcifying process is much the same in the cementum. The first cemental calcification takes place by the cementoblasts giving off these globular bodies near the neck of the tooth against the forming dentine of the root into a gelatinous substance, this also being given off by the cells. It assumes the form of plates or scales. Afterward the cells themselves appear to fill with the globules, and lose their identity in the forming matrix. That peculiar tissue which we call "tissue on the borderland of calcification," is composed of globular, glistening bodies which have coalesced and formed a layer within a gelatinous substance previously given out by the formative cells. In this condition it is a tissue indestructible both in acids and in caustic alkalies, and only in this condition is it true calcoglobulin.

In a recent work entitled "The Anatomy and Pathology of the Teeth," in a chapter describing "The Calcification of the Enamel," the author and his associates make some, to me, erroneous statements. They say, "The more we turn to the center of the cup (enamel-organ) the more shall we be struck by the presence of glistening, homogeneous lumps in the epithelia, until we have reached the center of the cup, where we observe that epithelium has been transformed into a number of such lumps in a regular arrangement, which reminds us of their origin from previous epithelia. The original epithelia (enamel-cells) gradually become enlarged, and are at last split up into a number of medullary corpuscles." Again, "Medullary tissue develops into connective tissue of a decidedly fibrous character." Again: "There is good reason for the assumption that the medullary tissues sprung from the previous external epithelium (of enamel-organ) is the source for the completion of such enamel as we observe

upon temporary teeth when they emerge from their sockets." And again: "If we examine the lower edge of the cup of the enamel-organ at about the sixteenth week of embryonal life, we observe a peculiar change in the columnar bodies of the internal epithelium, which consists in the appearance in a more or less row-like arrangement, of highly glistening globular bodies, replacing the previous columnar epithelia. These bodies are either solid or slightly vacuoled, and are formations of living matter such as we are accustomed to look upon as medullary, embryonal, or indifferent corpuscles, in their earliest stages of appearance. Obviously, these glistening globules have originated from the reticulum of living matter of the columnar epithelia (enamel-cells) themselves. We feel justified in this conclusion from the fact that we can trace step by step the growth of these glistening granules up to the formation of glistening lumps such as we have termed medullary corpuscles. . . . The lumps, I wish to repeat, are extremely glossy, with a high degree of refraction. They are arranged at first irregularly in a layer of considerable breadth, and higher up in rows, and by their coalescence and prolongation give rise to small columns, the ameloblasts. . . . These (medullary) corpuscles of the liquids contained in their reticulum become solidified into basis-substance and immediately infiltrated with lime-salts. . . . The enamel-rods are built up of such calcified or petrified medullary corpuscles."

These observations in regard to the calcification of the dentine endeavor to show that the odontoblasts are split up at their distal ends into these glistening bodies, which they call medullary corpuscles. "These medullary corpuscles are lumps of protoplasm, in which living matter is stored up in different shapes, the glistening globules of small size having arisen from protoplasm, and that these represent a juvenile condition of living matter in its most compact aggregation, which enter directly into the formation of the basis-substance of dentine, while at the same time, continually superadded to the proximal ends of the odontoblasts, are medullary corpuscles derived from the living matter of the papilla. Thus the continuity of the odontoblasts in dentine is established." They assert a similar proceeding from the ameloblasts, in a reverse direction. Thus, "the ameloblasts being broken up at their proximal (dentine) ends into medullary corpuscles

which are directly transformed into blocks of enamel-rods, are superadded to their distal or peripheral ends by medullary corpuscles derived from the stratum intermedium." . . . "The indifferent corpuscles, serving to supply additions to the ameloblasts, exhibit all intermediate stages between small, globular, glossy, and compact nucleated, protoplasmic lumps." . . . "Nothing but a transmutation of solid, globular lumps of living matter in delicately reticulated medullary corpuscles seems to be required for the building up of the minute blocks of the enamel-rods without the intermediate stage of ameloblasts. . . . The first appearing enamel is made up of irregular, angular, glistening lumps, greatly varying in size."

No one can be more clearly aware of the patient and persistent effort, and of the immense amount of labor and earnest research which the author has given to his work than myself, and great credit from his profession is due to Dr. Bodecker for this labor. I am not in accord with his views as to calcification of the dental tissues, and to some of us "the reticulum" and the "medullary corpuscles" are bugbears. To the earnest investigator, who did not know the author, it would seem from the description of the calcifying processes as if a tissue had been built up to fit a theory. So far as I am aware, photo-micrographs of these tissues, as described in this chapter on calcification, have never been shown. There is no absolute evidence to prove the correctness of the assertions.

These peculiar theories on the calcifying processes cause a very considerable amount of doubt in the mind of any one who has given this subject attention in the way of original investigation. The theories advanced clash strangely with facts. The glistening bodies seen in the epithelial layers of the enamel-organ are but lifeless lime globules, and do not have their origin in a reticulum of living matter in these epithelial layers. Their origin, as I have stated, is more probably from the blood-supply which is everywhere abundant near these layers. It is speculating in a very lively manner to assert that the cells in the enamel-layers split up into a number of medullary corpuscles of a fibrous character and then become formations of living matter, and it is wholly a hypothetical statement to make when they say that these glistening bodies, by coalescing and prolongation, give birth to the amelo-

blasts. Their lumps of living matter, which they call medullary corpuscles, are but glistening masses of lifeless matter, known to be calco-globulin. They are not medullary corpuscles; they do not arise from protoplasm; they are not "a juvenile condition of living matter in its most compact aggregation." I wish to repeat: These so-called glistening medullary corpuscles represented in their illustrations are nothing more or less than lifeless lime-globules.

"BACTÉRIA OF THE MOUTH," by Dr. Wm. H. Welsh, of John Hopkins University; read at the Union Convention of the Washington City Dental Society and the Maryland State Dental Ass'n. To study the micro-organisms of the mouth, it is necessary to scrape from the mucous membrane or from about the teeth the secretions in which they will always be found, though much more numerous in mouths that are not carefully kept clean. Pure cultures of such of the bacteria of the mouth as will exist upon what are called culture-media are made by inoculating the medium with the sputa. After a reasonable time, upon examination, the culture-material will be found covered with colonies of the different bacteria, and by inoculating new plates of culture-material from these colonies we get what are called pure cultures, that is, plates containing only one species of bacteria each. The colonies appear as whitish or grayish-white spots.

A very interesting point is the discrepancy between microscopical examination of the sputa and of cultures. The sputa contains many varieties of micro-organisms that are incapable of growth on our culture-materials. No other mucous membrane harbors so great a number or so many varieties of bacteria as the buccal; as this orifice is the main channel for all that enters the body, many varieties of micro-organisms are introduced, most of which tarry there but a short time, as they cannot assimilate the nutriment found there. Some, however, survive a long time, and there are others which have their natural home there and are not to be found elsewhere. We speak of these as the constant inhabitants of the mouth. The most important of these are the Leptothrix buccalis and the two species of spirilli. These are found invariably, and, as far as we know, they are harmless. A possible exception may be the leptothrix. It is found regularly in carious

teeth, in abscesses in the mouth, and in various forms of tonsilitis, but that it is capable of setting up any of these diseases is more than doubtful. They are all incapable of growth in culture-media. In the sputa, they are shown by the microscope. Bacteriologists state that they have cultivated them, but this has not been satisfactorily proven. The secretions and conditions of the mouth are exceedingly favorable to the growth of many species, but to some they seem to possess bacteriacidal properties. We have not, as yet, any very satisfactory demonstration of the reason for the disappearance of some species of bacteria which are frequently found in the mouth. Bacteria do not penetrate the saliva-ducts or glands, nor, though present in the intestines, do they ever penetrate the bile-ducts to the liver.

One of the most important of the bacteria which cause diseases is the pneumococcus. This is always present in certain diseases, and is found sometimes in a virulent state and sometimes in a non-active state where there is no disease. In a virulent form, it is perhaps in one in about four or five healthy mouths. It will cause death if injected into a healthy rabbit, and pure cultures of it will be found in the blood of the rabbit. It is this particular organism which has caused the belief of the toxicity of the human saliva. It is probably found in all mouths in a non-virulent form, and special conditions of the mouth may favor a change from the non-virulent to the virulent state. This pneumococcus is always found in, and is supposed to be a cause of, croupous pneumonia and cerebro-spinal meningitis, though there must be special conditions to cause death or disease from its action or presence.

A second micro-organism is the streptococcus pyogenes, a spherical bacteria growing in chains like pearls on a string. These are found, I think, in all mouths, or at least in a very large proportion. Inflammations of the throat and tonsils, pseudo-membranous forms of disease, pleurisy, erysipelas, cellulitis, and such types of inflammation are due to its action, and I believe it is especially concerned in caries of the teeth. The cause of caries has not been certainly and definitely settled, but these bacteria apparently are concerned. It has to do, also, in inflammations around the teeth. There are other pyogenic bacteria in such inflammations, but these are always present. They, too, are found

in virulent and non-virulent states. Their virulence is determined by the test of inoculation into animals.

The tonsils are particularly vulnerable points to attack of bacteria, especially in unhealthy conditions of the mouth, and in septicemia and blood-poisoning. In diseases such as scarlet fever the bacteria invade the whole system. The oral pyogenic staphylococci are not constant inhabitants of the mouth; they are universally diffused, produce boils and inflammations of external parts, and are what the surgeon guards against with his antiseptic precautions. Many other species of bacteria are less important; the variety found in abscesses communicating with the mouth is astonishing. Some disease-producing bacteria are found in the mouths of healthy persons; for instance, the diptheria bacillus is found to inhabit healthy mouths without the person suffering from the disease, though whether such person is incapable of transmitting the disease to another whose system is in a favorable state for receiving it is a question as yet unsettled. The tubercular bacillus may also be found in the secretions of the upper air passages. It has been discovered by Strauss in the nasal secretions of nurses and students, all of whom were healthy. This proves that it depends upon predisposition in the individual to become dangerous.

Bacteria closed up in teeth that are filled will probably do no harm, and, indeed, metallic fillings are antiseptic. As Dr. Miller has shown, pure gold, zinc, and tin are antiseptic. This can be and has been proven by inoculating plates with different kinds of bacteria, and placing the metals to be tested on the surface of the media. In twenty-four hours there will be colonies of bacteria covering the culture-media, except in the neighborhood of the metals, around which will be zones of varying width, in which no bacteria have developed. The antiseptic action is due to salts of the different metals which have been formed. Gold is less, and silver is more antiseptic than any other metal thus tested; the latter will generally be surrounded by an aseptic zone of a half-inch in width.

The Ohio Dental Journal for August, 1895.

"ALVEOLAR DENTAL HEMORRHAGES," by Otto Arnold, D. D. S., Columbus, O.; read before the Tri-State Meeting, at Detroit, June, 1895. The exciting cause of hemorrhages under considera-

tion must necessarily and primarily be traumatic. The trauma may be simple or complex: a simple bony socket with its connective tissue unbroken, scarcely disturbing the capillaries sufficiently to excite a flow of blood, or there may be more or less laceration of the tissues with fracture of its socket walls or deeper part of its maxilla, involving larger vessels, complications that materially influence the degree of hemorrhage in the ordinary or normal conditions of the system. Besides the trauma, there may exist a predisposing cause,—the condition known as the hemorrhagic diathesis, classified by some authors as a disease of the blood, technically termed hæmophilia, the patient being designated a "bleeder." Most cases of hæmophilia are traceable to heredity, although it may originate spontaneously. It is more common in males than in females, the proportion being 12 to 1. Structural weakness in the vessels, and deficiency in the coagulating element in the blood are the conditions that seem to account for this disease. In statistics of fatal cases of hemorrhage from various trivial surgical operations, tooth-extraction is given as the cause of the greatest number, which should be a standing menace to the dentist against carelessness in operations.

In persistent bleeding from external surfaces, I condemn the use of persulphate of iron as unreliable and treacherous. This agent forms a clot quickly, but it is usually too frail in structure to withstand the *vis a tergo* of the blood-current, and soon breaks away and secondary bleeding follows. Forcibly plugging the bleeding socket with wood, cotton, wax, etc., to mechanically stop the flow, is too violent a procedure, often doing more harm by expanding or distending the socket and its environment, thereby increasing the provocation.

As a local astringent, tannic acid, either in powder or saturated aqueous solution, for direct application to the bleeding parts, is very efficient and safe, and, in ordinary cases, will not fail. A simple method of application is to introduce a quantity of dry tannin into the bleeding socket and follow with a pledget of dry cotton, gently placed but filling the cavity snugly, the subsequent expansion of the cotton as it becomes moist securing its retention. If arterial hemorrhage exists, and torsion or ligation is impracticable, apply a batter of plaster-paris, enveloping the parts as in taking an impression; the hardened mass to be left *in situ* until all

chance of recurrence of bleeding is removed. To allay mental excitement and diminish the frequency of the pulse-beats, drachm doses of fluid ext. of ergot may be given every three hours.

Positive or pathognomonic signs may be entirely absent in constitutional bleeders, so it is not possible to be always forewarned, but if the existence of the hemorrhagic diathesis is suspected, every possible protective measure should be adopted. Patients should always rinse the mouth freely with hot water after tooth extraction, as it encourages free and uninterrupted bleeding from the wound, and stimulates a normal reaction in the tissues, soon followed by a natural cessation of the hemorrhage. If there is much laceration, I try to replace the tissues by compressing with the fingers or stitching into apposition any pendant portion of the gum, prescribing as a dressing, to be frequently applied: Tannic acid—gr. 20; listerine—oz. 4; aqua dist.—oz. 4. If the patient is known to be a bleeder, or if the bleeding be prolonged indefinitely, immediately prescribe gallic acid in ten-gain doses, to be taken into the stomach every hour until bleeding is arrested. This is an excellent prescription: gallic acid—1 drachm; aqua cinnamon—4 drachms; a tablespoonful hourly until hemorrhage ceases. Gallic acid possesses superior properties as an internal astringent and does not induce constipation, and in addition, has the property of increasing the coagulable properties in the blood, as I have observed the greater facility with which a clot is formed after the agent is administered. I have never seen a case of alveolar dental hemorrhage that was not arrested after the taking of from one to three ten-grain doses of gallic acid.

"Habit Spasms," by Dr. E. T. Loeffler, Saginaw, Mich., read before the same society. This really belongs to a class of diseases in which there are no constant changes to be seen with the naked eye. Formerly they were all included under "functional diseases," but microscopical changes have been discovered in some of them with sufficient frequency to make it certain that there is far more than a mere disturbance of function, and doubtless most of these maladies depend upon alterations in the nutrition of the nerve element, although these may not yet have been found, and perhaps cannot as yet be detected. Persons present spasmodic movements, such as winking, twitching the mouth,

jerking the head, movements that have a half-voluntary aspect, but which the individuals are unable to control. The condition is met with chiefly in childhood, especially in second half, but it sometimes commences in youth, and even in adult life. In young women it is often associated with symptoms of hysteria, and it may be difficult to decide whether certain spasmodic movements are to be regarded as of reflex dental neurosis, of habit spasm, or of hysterical spasm. When it commences in childhood, the affection commonly ceases after a few months, but occasionally goes on to middle life. Rarely it begins late in life and is then generally permanent. In early life it occurs especially in nervous and excitable children, and is said to be more common in females than in males. Some claim that impairment of general health often precedes the development of the movements; occasionally they appear to be due to some special influence depressing the nervous system, over-work, a fright, or some injury. In one case the onset followed a fall into water. There is frequently a history of other neurosis in parents or other relatives. A father had such movements in the face all through his life, and two children likewise presented them. It is quite probable that the affection often arises by imitation, as the witnessing of such movements is apt to produce a peculiar excitability, which finds expression and relief in movements of a similar nature. There are many well marked cases on record in which the cause was due to an irritation reflected from diseased teeth.

Of drugs, arsenic has certainly the most influence to remedy it. Weir Mitchell has known the hypodermic injection of arsenic to succeed when other things failed. Nerve tonics, such as quinine and strychnine, may with advantage be added. If there is much excitability of the brain, or if spasmodic movements are seen, bromide of potassium may be needed, and occasionally a local blister is very efficient. A spasmodically smiling clergyman ceased to be troubled after he had for a few weeks taken some arsenic and iodide of iron, and a dose of bromide each time he had to conduct a service. In recent cases of facial spasm, apparently excited by cold, free diaphoresis should be employed, and the face and side of the head frequently bathed with hot water. If there are indications of organic disease, the nature of this must be ascertained and treated. All causes of reflex irritation must be

sought for and removed; decayed teeth should be extracted, especially if they are on the same side as the spasm. Occasionally such nervine tonics and stimulants as zinc, nitrate of silver, asafœtida and valerian may be given, but in the vast majority of cases they fail conspicuously. Sedatives applied to the skin seldom exert any influence over the spasm. Hypodermic injections of strychnia or of morphia have done good in some cases. In the use of morphia for the relief of spasm it is probably more desirable to inject it in or near the seat of spasm than in the case of its anodyne use; the temple is the most convenient locality. Electricity has been largely used and highly praised, but in nine-tenths of the cases it fails even to relieve. Stretching the facial nerve has lately been adopted in these cases, but with imperfect success.

Discussion: Dr. Oliver, Indianapolis. Habit spasm, as produced by dental irritation, is a peculiar malady usually found affecting the muscles of the face and neck, more common in females than in males. It is more liable to occur at dentition, either at the eruption of the deciduous teeth, during a period of from six months to two years, or at the eruption of the permanent set from five to thirteen years, or at the eruption of the wisdom teeth from eighteen to thirty years. Of course, this reflex neurotic condition may be present from some pathological condition of a tooth at any time of life, but infrequently, and when found are usually caused by such dental irritation as pulp stones, or an extosis, constricting or impinging the nerve fibers, and when the cause is removed, nature will take care of itself. Such cases rarely last long, the involuntary twitching of the muscles ceasing after the peripheral irritation is removed, when the normal centrifugal action takes place almost simultaneously. The so-called teething spasms of babies usually subside after the tooth has forced itself through the alveolus and gum. The cases caused by dental irritation during the eruption of the permanent teeth are the hardest to combat and last the longest. In ninety per cent. of all cases the trouble commences with the eruption of the sixth year molar, and if the child has inherited a choraic tendency from its parents, or if his family history is of a phthisical, scrofulous, rickety, or syphilitic character, the spasm will usually continue intermittently until after the eruption of the second molar, when

there will be a cessation until the wisdom tooth renews the trouble. In these cases arsenic is the most valuable remedy. Fowler's solution can be given after meals, commencing with three drops three times a day, and increasing the dose until ten drops are taken after each meal, provided that nausea, edema of the eyelids, or other toxic effects do not appear. Iron, cod liver oil and quinine may be given in combination with arsenic, if the condition of the patient is anaemic, or if arsenic alone does not satisfy. Probably this disease is worst when produced by an arrest in the eruption of the wisdom teeth, and this is especially true in the cases of young women. Frequently they are dosed and even operated upon for so-called female weakness, when absolutely nothing obtained but choraic spasm perhaps produced by dental or ocular irritation.

Dr. Barrett, Buffalo, suggested the idea of habit spasm being due to nervous force becoming accustomed to flow in some particular direction. The remedy was to use some agent that would cause this force to flow in another direction. This might be accomplished by the use of counter-irritants, scarification, or other means that, by metastasis, would produce a cure.

The Pacific Stomatological Gazette for August, 1895.

"ORTHODONTIA TECHNIC," by H. D. Noble, D. D. S., San Francisco, Cal.; read before the San Francisco Dental Association, August, 1895. This is a term used to express the art or science of constructing regulating appliances. Being associated with a college for the last three years, I have been instructing students in the making of regulating appliances, as follows: I first give them a piece of German silver plate, No. 23 gauge, to roll to 27, and 34 or 35. The 27 is used for making tubing; it is cut into strips about one-quarter of an inch in width; one end is tapered and the sides slightly curled to facilitate its curling while being pulled through the draw-plate. The drawing is repeated until the tubing is reduced to the required size. It is then ready to be cut into proper lengths to solder on bands, making jack-screws, etc. Care should always be taken to have the seam in the tubing next to the band when soldered to a band, to avoid the possibility of its opening when pressure is applied, which it might do if otherwise soldered. For bands the material is rolled to No. 35,

or even 36 gauge, to facilitate the introduction and adjustment of the bands on the tooth or teeth. It requires very little, if any separation of the teeth to get a band of that thickness in position.

There are a number of materials used for making regulating appliances, viz.: platinum, platinum gold-plated, gold, German silver, which is considered a most excellent material for almost any kind of a regulating appliance, but, on account of its tarnishing, it is rarely used in the anterior part of the mouth; here platinum or platinum gold-plated is preferable; ligatures and vulcanite are also used. The students use only German silver, vulcanite and nickel for their dummy work. They are given a piece of wire, No. 13 gauge. This they draw down to 17, unless they can manage to borrow some already drawn, for they don't like such vigorous exercise. The wire is used for jack-screws, drag-screws, bands, burs, etc. They are also instructed to make steel taps and drills. They take an old instrument, draw the temper, then, by holding it between the thumb and fingers of one hand, keep it rolling while it is being filed with the other. This makes the instrument perfectly round, and it is reduced to the proper size. The end is shaped like a drill, and is made just small enough to pass through the hole in the screw-plate in which you want to cut the threads. Part of the instrument is filed square to give sharp cutting corners, the thread is continued for a short distance, encircling the instrument. It is now ready for tempering, which requires considerable skill in getting the right temper in the right place. It should have a spring or blue temper in the shank, and a straw or cutting temper in the threads and drill. It is then ready for use.

Having once learned how, one is enabled to make any size tap and drill, or in fact most any kind of instruments. If at a great distance from a supply store a dentist will undoubtedly find it very convenient and save lots of time if he is able to step into his laboratory and turn out the instruments he is urgently in need of. By the aid of a tap and drill we are able by careful manipulation to cut threads in any material we may wish to make nuts of. A nickel five-cent piece is excellent material for making nuts. The preparation of the nickel is to smooth one side on a corundum wheel, then mark it out in squares a little larger than you wish the nut; then drill holes in the center of the square with

your engine and small drill. Then the drill on the end of your tap will enlarge the hole sufficiently to allow for the cutting of the threads; saw out the little square with a metal saw; then with a little dressing the nut is ready for use. German silver square tubing is also very useful for nuts. This is made by taking No. 23 German silver plate the proper width, pulled through a round draw-plate until the edges meet; then solder the seam and pull through a square draw-plate until reduced to proper size. This can be cut in any lengths desired; where much pressure or strain is required a long nut is more serviceable than a short one.

The Matteson cap is also an excellent article in use to assist in regulating teeth. This is made by taking an impression of the tooth or teeth, making the die and counter in Melotte's metal, and swaging cap to cover coronal or cutting surface of the tooth and passing part way down the sides of the tooth. The cap is especially useful in regulating partially erupted teeth where it is almost impossible to cement bands on. It may also be swaged to cover several teeth to open the bite when necessary.

"METHOD OF SPONGE GRAFTING," by Dr. Gordon White, Nashville, Tenn., read before the Stomatological Club of California, Aug. 13, 1895. In 1885 a prominent lawyer of Mississippi came into my office and said: "I have come to you from a long distance. My dentist tells me that I have got to lose this front tooth." After examining the tooth, which was a right superior lateral, I found that it was nearly denuded of its periodontal tissue or membrane. Fully two-thirds of the root of the tooth, commencing at its end, was entirely denuded; you could feel that slick surface which we are all familiar with when we strike a tooth with no periodontal membrane. After having sterilized my instruments, which I did only with hot water and a little carbolic acid, I made an incision. I then took a Fisher bur and ran down between the central and the lateral; ran my engine quite rapidly and cut it off. However, before doing that I filled the root-canals perfectly. I then took a coarse bur and, having sterilized it, burred out all the devitalized bone; then I took a fine finishing bur, medium sized, and smoothed the end of that root. The patient was only in the city for a few days, and consequently I had only an opportunity of treating it twice before the opera-

tion. First, I washed it out with hot water, as warm as he could bear, and a slight solution of carbolic acid; however, in washing it out previously I used peroxide of hydrogen, and then I washed it out with hot water and carbolic acid. I said to him, "Let me see that again tomorrow." I did not report this case until I had a test of it, so when the patient came back to see me after remaining away two years, I reported it to our State Association.

About that time Dr. Atkinson wrote an article, or rather made a report, as I am doing now, about his having had some success in sponge-grafting in cases of extensive pyorrheal trouble. That summer I took a run up to New York to see him. That was two years after I had performed the first operation. I spent an evening with him and told him what I had been doing in that line, and that I had seen he had been doing some work in sponge-grafting. He said he had. I asked him why it could not be used for filling the cavities in the bone after having removed the ends of the root. He said, "I did it once and was very successful, and should think it would work very well." I got all the points I could from him—which he very generously gave—returned home, and a few days after that I had a case similar to the one just recited. I performed the operation in the same way, and after having done that I used the sponge. I prepared my sponge pretty much according to his suggestions. I steeped it in warm water in which I had as much as a couple of grains of bichloride of mercury; I kept it at a temperature of about 164 degrees, if I remember correctly. I then sterilized my hands and my scissors, and trimmed the sponge very much in the shape of a pear, so as to fit the cavity approximately well, and, having squeezed out all of the bichloride, I then inserted it in the cavity and permitted the end of it to protrude from the wound. In a day or two I had this patient come in and found a little protrusion of the sponge; it had increased in size because I had squeezed out a great deal of the solution in which I had sterilized the sponge. Of course, it took up a great deal of moisture from the wound and protruded a little from the cavity. I took a pair of scissors and clipped it off the margin of the wound; I did that twice. I saw the patient then every few days, and would wash it with sterilized water. I watched it because it was my first sponge case, and I found that within about two weeks the sponge had apparently taken considerable hold, or rather the granulations

had taken hold of the sponge, and in about a month the only sign of the operation was a little red spot as big as an ordinary pin-head. It gave him no trouble, no pain whatever after the operation, and there is scarcely any sign of the operation and very little depression. Granulations took place and built and built until the sponge was obliterated. I have performed the operation many times, and have not yet recorded a single failure, though I have a couple which I think will fail. I think if you once cure a chronic abscess by means of this operation you will use no other, as it is an operation which will give great satisfaction. I want to say, however, that I do not use quite such a strong solution of bichloride. I think it creates too much irritation, its cauterizing effect is very great, and so I don't use it quite so strong. I am now using only one grain. I also use the very finest surgical, or silk, sponges—those little soft sponges. The coarse sponge is not good to use.

The Dental Register for August, 1895.

"TUMORS OF THE MOUTH," by Dr. C. G. Darling, M. D., Univ. of Mich.; read before the Mississippi Valley Dental Society, April 18, 1895. Tumors small and benign give neither the patient nor the dentist much concern, being early submitted for treatment and usually brought to a successful termination. The malignant varieties, however, come insiduously, giving no hint of their true character until they are decidedly present, appropriating space and tissue to their own use, they soon become a source of danger and discomfort to the patient, and should be checked at once. Fortunately the risk to life in operations about the face and mouth is slight when compared with operations of the same magnitude in other parts of the body. No life-sustaining organs are involved. Shock is not great, and sepsis is so slight in wounds of this locality that it seldom proves fatal. Therefore, nearly all operations about the face are a success so far as recovering from the effects of the operation and the repair in tissue may be concerned. Even those failures made so by a return of the disease are not without good results, and I will attempt to show by some cases that even the unpromising and rapidly developing tumors may be removed, prolonging the life ot the patient and giving comfort in his last days.

E. L., a man thirty-three years of age, entered the University Hospital in March, 1891, and gave the following history: In July of 1890 he had noticed a small growth of the inferior border of the lower jaw which corresponded to the position of the first molar tooth. Early in October two teeth were extracted (whether by physician or dentist I do not know), under the impression that at the roots of these would be found the cause of the trouble and that it could be easily removed, but, instead of improvement there sprung up from the alveolar process a mass which rapidly increased in size until nearly all of the right half of the lower jaw was involved. The growth soon began to break down, while the discharges and sloughs from this suppurating mass were not entirely expelled but portions were swallowed and taken into the lungs, causing a rapid decline in the patient's health. The diagnosis of rapidly growing sarcoma was made, and on March 30, 1892, the first operation was made; removing a little more than half of the lower jaw. The parts healed promptly and in three weeks the patient left the hospital apparently cured. Three weeks later, however, he returned with the disease well advanced in the remaining portion of the jaw. This was promptly removed together with the floor of the mouth well down to the base of the tongue. June 10, 1892, he again returned to his home and no change for the worse was noticed for two months, when nodules began to develop on the right side near the old scar. These continued to increase in size and join together until quite a bulky tumor was formed. For the third time he came to the hospital; again it was decided that operation might give relief, although the tumor now extended well up toward the temporal region involving nearly all branches of the facial nerve and reaching downward along the carotid vessels. After a tedious and dangerous dissection which lasted more than two hours the growth was successfully removed. Again the patient made a good recovery and died about two years later from the effects of sarcoma in the lungs and kidneys. During this time he was remarkably free from pain and seemed to enjoy life. No great deformity was caused by this extensive operation and he could speak nearly as distinctly as before, though the entire lower jaw and the floor of the mouth were removed.

Here is another case illustrating the proper method of operat-

ing for carcinoma when the surgeon sees his case early. Mr. W. H., farmer, has been a moderate drinker, enjoying good health. Three weeks ago he first noticed a small growth on the under surface of the right side of his tongue, it was closely connected with the surrounding tissue, growing rapidly and painlessly. A small portion was excised under cocaine anæsthesia and submitted to microscopical examination. October 17, 1894, he was operated upon in Prof. Nancrede's clinic, one-half of the tongue being removed well back to the base. Rather a heroic operation for a small growth of three weeks duration you may say, but here is the pathologist's report: "I have made sections of the growth from the tongue already reported as epithelioma, and as far as I can see you have gone well outside of the disease." This extensive operation was the only hope of cure for this man, even then the lymphatic glands may have been involved, and the return of the disease may be noted at that point while the scar surface remains healthy. Cancer appearing in the mouth can scarcely be mistaken for any other growth, and there is never any difficulty in removing a portion to confirm the diagnosis, then prompt and thorough removal is the only chance for cure. When any lymphatics are found to be suspiciously enlarged, they must also be removed at the same time.

Sarcomatous tumors of the jaw may be removed with a reasonable hope of cure when the growth is central (myeloid sarcoma), if the entire bone to which the disease is confined be removed. Periosteal sarcoma does not promise such good results, because the surrounding tissue may be involved, but these tumors come early in life when the patient is vigorous and will rapidly recover from operations. In all tumors of this class, not only the jaw should be removed to the median line, but the entire periosteum and attachment of muscles must also be taken away, if we operate with any expectation of a cure.

Mechanical devices to take the place of parts removed or to correct deformities following operations for malignant disease should not be applied for some time after complete recovery because of the danger that such irritation might renew the disease. When the cicatrices are well formed or the diseased condition is not malignant nor beyond the bone, this point may be disregarded and the deformity corrected. The use of medicine in the treat-

ment of malignant tumors is not to be considered where operation is possible but may be tried as a last resort. Coley, of New York, has recently reported thirty-five cases treated by injecting the combined toxines of erysipelas and the bacillus prodigiosus. In five of these cases he has reasonable hope of a permanent cure. All of his cases were inoperable and the diagnosis was verified microscropically. The investigations being carried on at the present time concerning the causes and treatment of these tumors certainly promise great results.

The International Dental Journal for August, 1895.

"IMPACTED THIRD MOLARS," by Dr. J. W. Foreman, Asheville N. C. The text-books are still teaching the extraction of the second molars for the relief of trouble caused by the lack of room for the proper eruption of the third molar, especially when it partially erupts in a horizontal position. The last edition of Garretson's "Oral Surgery" says, in discussing this condition, "Such extraction (of the third molar), however, is occasionally among the almost impossible things. A tooth so affected will not infrequently have but a point not larger than the head of a pin erupted. In these cases the best thing to be done is to *take out the adjoining molar.*"

I have never seen a case where this was either necessary or justifiable. It is not necessary because, if the third molar is through the gum at all, with proper appliances it can be brought far enough up to be grasped with the forceps and removed. It is not justifiable because in the vast majority of instances we deprive the patient of a very valuable tooth, the extraction of which is in no degree necessary; and, as a rule, the third molar proves of but little value, tipping forward if not erupted in a horizontal position, thus producing a practical loss of two teeth instead of one. From my observation and experience I can conceive of no case, where the tooth is through the gum at all, or even above the edge of its socket, in which it would be anything but *bad* practice to extract the second molar, except where inflammation is so great that it would be dangerous to delay extraction long enough to bring the offending tooth up within the grasp of the forceps, or the possible case where there might not be strength enough in

the tooth to resist the force necessary to dislodge it. Even where the inflammation is severe it will subside quickly, as a rule, after the appliance for elevating the tooth is in place, as this at once prevents the bruising and irritating of the overlying soft parts, which causes the trouble. When the tooth is far enough erupted to allow a firm hold with the forceps there is seldon need for anything more than to grind or file away the tooth sufficiently to free it from contact with the second molar, or to separate them as for filling, that the tooth may be drawn away from the ramus. Should the tooth present horizontally, or be so imperfectly erupted as to be beyond the reach of the forceps, an apparatus to elevate it is needed.

The appliance used in dealing with the last case is a vulcanite cap to cover the two molars and second bicuspid, with a gold arm bent so as to project over the tooth to be lifted, and as far above it as the upper jaw will permit. The remainder of the apparatus consisted of a gold-wire staple with the ends bent the second time so as to form an enclosed, long link, the ends of which were pinched together into holes drilled in the buccal and lingual sides of the tooth, and a piece of rubber tubing to connect the staple with the projecting arm of the cap.

The idea was first to get the force from a screw, but it was found that the patient could not manage that, and the elastic was substituted. The cap was removed, cleaned, and replaced once a day by the patient. This tooth was placed horizontally, the grinding surface impinging upon the distal root of the second molar; the distal surface, the only part uncovered, less than one-fourth of the circumference of the tooth. The gum had to be cut away on both sides to get low enough down to drill the holes, the discolored part between the holes being all that was exposed. Ten days sufficed to lift the tooth enough to permit fairly easy extraction. A severe otalgia, from which the patient had suffered for weeks, had disappeared almost as soon as the tooth began to move, and, with the exception of a slight attack the day after extraction, has never returned. The difficulties in extracting these teeth are often very great, it is true, but it has never been my misfortune to find them so great as to force me to sacrifice the second molar.

The Dental Review for August, 1895.

"MALOCCLUSION," by W. H. H. Barker, Huron, S. Dak. The function of mastication in man depends upon occlusion. Perfect mastication on perfect occlusion, and perfect occlusion on a perfect denture. What constitutes a perfect denture may be widely interpreted but limited to its office. As a masticatory apparatus there can be but one definition, and that the typical form of nature—thirty-two teeth set in a double arch, one in direct apposition to the other. We say typical form, for this is the correct form where nature has done her perfect work. Seen in its highest state of development, there is no variation from this type, but viewed from the standpoint of actuality, it often varies, and when it does there must ever exist the condition indicated by the caption of this paper.

It is not our intention to define farther the perfect denture, nor enter into the beauty and perfect adaptation of the ends to be subserved, when there is a perfect occlusion of this apparatus, but to note in part some of the evils that exist where its opposite prevails. This we have termed malocclusion, and it sufficiently explains what is meant thereby. In considering this question, we must take the teeth as an aggregation. And yet we cannot eliminate them as units, nor fail to consider them in their individuality to some extent, as each one plays a significant part, and thus contributes to the whole. Passing by the anatomical form of any tooth, or class of teeth, as units, their location in either arch, or their individual adaptation to their special uses, we come to note these facts, viz.: First. That in occlusion no tooth except the inferior central incisor, and the superior dens sapientia, but impinges or rests its morsal surface upon at least two of its fellows in the opposing arch, and second, that each in its own arch, except the dens sapientia, impinges on its mesial and distal surfaces with the same number of its fellows in its own arch. Upon these two facts are based many laws which should never be lost sight of nor ignored in any operation in the oral cavity, so far at least as the teeth are concerned. One of these laws, and the one that perhaps is the least considered, is that of facial expression. There cannot be a perfect face where there is malocclusion. It is evi-

dent that the jaws and teeth make or mar, to a great extent, "the human face divine." If there is a malposition of a single tooth, or even the lack of one, there must follow the want of perfection in the adjacent tissues, both hard and soft, as they are interdependent, and have a lack of symmetry which a perfect type demands. No part of the face is so subject to change as that bounded by the maxillaries. Infancy, youth and old age proclaim these truths to every beholder. They are seen in the undeveloped face of the child. Again, more markedly in the sunken lips and cheeks of the partly edentulous jaws of the adult, and still more so in the advanced in age when the perfectly edentulous jaws causes that markedly wrinkled, shrunken appearance as seen in the near approach of the nose and chin. These are only a few of the ills manifested in facial expression as the result of malocclusion.

Again, as to the voice. How much depends upon occlusion, and how often, very often, does malocclusion interfere and prevent clear, distinct and perfect articulation. How often does the want of impingement of morsal surfaces of the teeth allow a disarrangement of the whole apparatus. Elongation, or protrusion are marked features, and most seriously interfere with the free movements of the lips and tongue, and these in turn interfere with enunciation to such an extent that in many cases the voice is marred beyond recognition and almost beyond redemption. This is a feature that calls loudly for remedy at the hands of the dental surgeon and should be much less ignored than it now often is. It is a physiological law that the full development of an organ and its maintenance in a normal healthy condition is dependent upon its use. Nature allows no drones, physiologically, and hence the work designed for an organ must be performed by it, or it suffers in consequence.

The dental organs are no exception to the rule. They are made for work, and hard work of the most severe and constant kind. That this work may be done rightly, and to its full extent, there must be no break in either arch, and occlusion must be perfect and complete. Malocclusion does not allow of either normality or healthfulness of the teeth, either as a unit, or as an aggregation; work is their life, and antagonism their salvation. In malocclusion, both, to some extent, are wanting, their office abrogated, and they must pay the penalty. Disease readily attacks a

single member of the arch, or the whole of that arch, if not put to service, and the role of nature is to expunge what is of no service in her economy. Among the many cases of malocclusion, may be noted the following: Irregularity, a most fruitful source, happily in a large number of cases, remedial. It is seen in its worst form in a crowded condition, and is the result of a want of correspondence in the size of the teeth and jaws. Then comes the lack of the proper number, and results usually from loss by caries, or extraction after the organ has developed and taken its place in the arch. Next, the wasting of the gums and alveolar processes from mercurial salivation, pyorrhea alveolaris, the impingement of salivary and sanguinary calculus, and other diseases, causing the teeth to change their positions, and to assume new ones, not in keeping with the use for which they were designed, or intended in mastication. Besides these, there are numberless others, such as abrasion, mechanical and chemical, erosion, atrophy, hypertrophy and exostosis, aside from numerous diseases that attack the antrum of Highmore, and the soft tissues covering and adjacent to both maxillaries, as inflammations, abscesses, tumors, and cancerous growths. Traumatic wounds, or mechanical injuries inflicted by accident or caused inadvertently by those who operate on these parts in the oral cavity are also to be noted.

How erudite the mind must be that can see and comprehend the conditions to be met in all these cases. How skillful the hand that can reach forth and apply the needed remedy, or supply the agent that can bring comfort and convenience, healthfulness and beauty, utility and perfection, where all these elements are at war, to mar and despoil. It may not be within the power of the dentist or surgeon to at all times prevent the evils of malocclusion, or remedy them after they once occur, but certainly it is within their power to put forth their hands to stay the deadly work of the forceps, and refuse to mar, where the hand of science might justly step in to build up and repair. It is certainly within their legitimate field to strive to keep intact that which they can never repair, when once the dispoiling hand has done its work. Bearing in mind the ill that follows in the wake of every dental lesion, it should be their aim to conserve and protect, and thus render nugatory, at least to some degree, the dire effects of malocclusion.

The British Journal of Dental Science for August, 1895.

"ORAL SURGERY," by Edmund W. Roughton, B. S., M. D. (Lond.), F. R. C. S., Eng. Fracture of the Mandible. *Causes.* Fracture of the mandible is nearly always the result of considerable direct violence, such as the kick of a horse, a fall from a height, a blow from a fist, etc. Small pieces of the alveolus are often unavoidably broken in extracting teeth, but a complete fracture may occur during extraction by unskilled persons. It is said that fracture has resulted from muscular action, but such an occurrence must be extremely rare.

Varieties. Most fractures of the mandible are compound, because the muco-periosteum covering the bone is torn, thus admitting air from the mouth; when the fracture occurs in a part of the bone not in direct relation with the buccal cavity it is usually simple, unless it results from a penetrating wound or gunshot injury. The fracture may be single, multiple or comminuted.

Situation. The line of fracture may pass through the socket of the canine tooth, the mental foramen, the symphysis, the angle, the ramus, the neck of the condyle or the coronoid process. The commonest situations are the socket of the canine tooth and the mental foramen.

Symptoms—The symptoms of fracture of the mandible are pain, deformity, preternatural mobility, crepitus, loss of function, bleeding from the gums and dribbling of saliva. The pain is usually severe, more so than in most fractures; its severity is due partly to the laceration of the gum and partly to injury to the mandibular nerve; it is increased on masticating, swallowing or speaking and causes the patient to support the injured part with his hands. The deformity is only noticeable on looking inside the mouth; it is due to displacement of the fragments. The smaller or posterior fragment is usually displaced outwards and a little forwards, overlapping the larger or anterior fragment; the displacement is due partly to the direction of the line of fracture which runs as a rule from the inner plate forwards and outwards to the outer plate. When the body of the jaw is fractured on both sides, the displacement is more marked, the loose central fragment being drawn downwards and backwards by the muscles passing to the

hyoid bone. When the fracture is in the ramus there is very little displacement and it does not of course affect the regularity of the teeth. In fracture of the neck of the condyle, the latter is drawn forwards by the external pterygoid muscle and can be felt by the finger introduced into the mouth; the chin is slightly tilted towards the injured side, (the reverse occurs in unilateral dislocation). Preternatural mobility is more apparent the nearer the fracture is to the middle line; it can be both seen and felt; it is most marked when the fracture is double. Crepitus can be detected when the fragments are moved on each other, or by placing the hand over the injured part while the patient opens and closes the mouth. It is of most value as a symptom when the fracture is situated in the ramus or neck of the condyle, because in these cases the other symptoms are more obscure. Loss of function is evidenced by inability to masticate, and by impaired distinction of speech.

Complications—Fracture of the mandible is usually a comparatively trifling injury and is soon repaired, but it may be complicated by the following conditions: (a) *Hæmorrhage:* This is usually slight and derived from the injured gum, but severe bleeding (both primary and secondary) has been known to occur from injury to the inferior dental artery. (b) Wounds of the face are rare except in gunshot injuries. (c) Dislocation of the mandible is extremely rare in cases of fracture. (d) Injury to the teeth: One or more teeth in the vicinity of the fracture are occasionally broken or a tooth may be dislocated from its socket and interposed between the broken ends of the bone, interfering with the process of union. (e) Damage to the mandibular nerve may occur at the time of the accident, or subsequently from the pressure of callus, causing anæsthesia or neuralgia in the region supplied by the nerve. (f) Injury to the base of the skull: The condyle has been known to be driven through the glenoid cavity and inflict fatal injury to the brain. (g) Necrosis may result from complete separation of a fragment from its vascular connections at the time of the injury or subsequently as the result of suppuration. (h) Salivary fistula may result from imperfect healing of an abscess which has burst upon the surface of the cheek. (i) Vicious union, i. e., union with deformity, may occur when the fragments have not been kept in proper apposition,

especially in multiple fractures, or where there has been loss of bone from necrosis. (j) Non-union may be due to want of apposition through lack of treatment, or through the interposition of a loose or necrosed fragment or a dislocated tooth. (k) False joint: In this condition the ununited fragments become rounded off at the ends and held together by a sort of fibrous capsule lined by a smooth membrane which secretes a kind of synovial fluid. In Esmarch's operation for closure of the jaws, the surgeon aims at producing this condition.

Treatment—The following are the methods most frequently used: (1). The four-tailed bandage: A piece of bandage a yard long and 4 inches wide, with a hole 2 inches long in the middle of it, and with the ends split to within four inches of the hole, is applied so that the point of the chin is received into the hole. The hole should be about an inch nearer the upper than the lower edge of the bandage, so that the latter may lift the jaw rather than tend to draw it backwards. The two lower tails are tied over the top of the head, and the two upper ones behind the occiput, the two portions being subsequently knotted together to prevent their slipping. If the upper tails are tied behind the nape of the neck (as recommended by some surgeons) they have a tendency to draw the anterior fragment backwards. Some surgeons supplement the four-tailed bandage with a molded gutta-percha splint. In most cases it is unnecessary and adds to the discomfort of the patient by retaining the perspiration, by becoming soaked with saliva and by pressing upon the soft tissues of the chin. If used it should be perforated with small holes and lined with chamois leather or lint, and the parts dusted over with an absorbent antiseptic powder. The objections to the use of the four-tailed bandage are that when there is much displacement, especially in oblique fractures, the bandage does not remedy it and the jaws being kept in apposition, mastication is impossible and the patient is limited to fluid nourishment.

(2). The Hammond Splint: This consists of a wire frame which is accurately fitted and fixed to the teeth. The splint is fitted in the first instance on a model of the jaw. To obtain the model, the fracture is fixed temporarily by a silk ligature passed round two teeth on each side of the fracture, and an impression of both upper and lower jaws taken in wax. When the models have been

cast, the lower one must be sawn through at the line of fracture, and the pieces fixed together so that the upper and lower teeth articulate correctly. In this way is obtained a model of the same size and shape as the jaw before it was broken. To this model a frame of soft iron wire is accurately moulded, the ends being soldered together. The splint thus constructed is next slipped over the patient's teeth (which should be free from tartar) and fixed in position by means of a number of pieces of iron binding wire about five inches long and pointed at the ends to facilitate their passage between the teeth. The first wire is passed over the outer bar of the splint, between the first and second molar teeth of the left side and below the inner bar; it is then bent round being made to return over the inner bar, between the first molar and second bicuspid and under the outer limb; the two ends are then loosely twisted together. The same process is repeated on right side of the mouth. The wiring is repeated on alternate teeth, until the splint has a firm hold; it is not necessary to wire every tooth, and it is inadvisable to wire those in the immediate vicinity of the fracture. When all the wires have been passed the ends are twisted up, cut short, and tucked away under the outer bar of the splint. After a few days they will probably want tightening up a little more. The advantages of the Hammond splint are (a) the fracture brought into accurate apposition so that the "bite" is restored. (b) It is very firmly fixed. (c) Mastication and speech are very little interfered with. (d) The mouth can be kept clean. (e) The apparatus is out of sight. Unfortunately its applicability is limited to those cases in which there are a sufficient number of firm sound teeth on each side of the fracture to enable it to obtain a firm hold.

(3). The Hayward (or Kingsley) Splint: This consists of a metal or vulcanite cap which fits over the teeth. In the sides of the cap are fixed two wires an eighth of an inch thick; the wires are curved so that, when the apparatus is applied, they emerge from the angles of the mouth and lie over the cheek. The splint is fixed by means of a bandage passing under the jaw between the two wires. Its chief disadvantage is that the projecting wires prevent the patient from sleeping on his side.

(4). The Gunning Splint: This is a vulcanite splint which has depressions to receive the teeth of both the upper and the lower jaws. When applied, the jaws are bound together by a

four-tailed bandage. The disadvantages of this splint are (a) suspension of mastication, (b) dribbling of saliva, (c) fatigue from propping the jaws open, (d) difficulty in keeping the mouth clean.

(5). Ackland's Splint: This consists of a plated metal horse-shoe shaped piece with rests on the lower teeth, and a similar one which is applied below the chin. These are fastened together by two movable clamps. To apply the splint the mouth-plate is lined with gutta-percha which is warmed and driven down on the teeth and gums. The chin-plate, lined with wash leather, is put in position and held there. The swivel clamps are then fitted into both plates and by the thumbscrew can be made to clamp the plates together until the requisite tension is attained. The advantages claimed for this apparatus are: (a) It can be quickly and readily applied. (b) It can be used over and again for different patients. (c) The mouth and splint are easily kept clean. (d) It does not interfere with the function of the jaw. (e) It can be used in edentulous cases. The chief disadvantage of any splint having a chin piece is that the pressure of the latter is apt to produce pain and to lead to ulceration or sloughing.

(6). Ligaturing the Teeth: This proceeding loosens the teeth and irritates the gums. It should be used only to fix the fracture temporarily until a permanent apparatus can be applied.

(7). Wiring the Fragments: This is scarcely ever required for an ordinary fracture, but may be used with advantage when the surgeon has to divide the jaw in performing Syme's operation for removal of the tongue.

On the Choice of a Method—The practitioner must determine in each case what will be the most suitable method of treatment. The following statement will cover the majority of cases met with:—1. Fracture of the Body. (a) In an adult, with firm teeth in each fragment—Hammond's splint. (b) In a child—Hayward's splint, the cap being made of vulcanite and lined with gutta-percha moulded on the teeth. (c) When there are not enough firm teeth to fix a Hammond, a Gunning or Ackland's splint should be used. 2. Fracture of the angle, ascending ramus, condyle or coronoid process—four-tailed bandage. Whatever method is used it will generally be necessary to keep the retentive apparatus on for about five weeks. At the end of that period

splints and bandages may be discarded, but it is well for the patient to wear a handkerchief tied round the chin and over the top of the head for some few weeks, especially at night so as to check any unduly violent movement of the jaw.

Correspondenz-Blatt Fuer Zahnaertze for July, 1895.

"HÆMORRHAGE SUBSEQUENT TO EXTRACTION," by Dr. Schmidt, Germany; read before the Darmstadt Dental Society. On this assigned theme there has already been much written, and at first glance it would seem hardly worthy of the effort to review the subject. Yet the fact that new remedies are constantly being recommended in cases of post-hæmorrhage, demonstrates that the discourse is deserving an announcement.

Ordinarily the bleeding resulting from the extraction of teeth should be stopped in a short time, and by the simple use of cold water, since the bleeding is but capillary. In the dental literature there are but few cases of arterial-hæmorrhage described. In a few cases, Dr. Hollander (Ueber Hæmorrhage, Leipzig) observed such bleeding after the extraction of the inferior wisdom tooth. Dr. Busch, (Deuschen Med. Wochenschrift) noticed this result in but one case, the upper wisdom tooth. In 40,000 extractions, Dr. Parreidt, (Compendium d. Zahnheilkunde) never saw a single case of arterial-hæmorrhage. I was afforded the opportunity of seeing 50-60,000 extractions and observed but one instance of arterial-hæmorrhage, that of the right inferior wisdom tooth. The extraction was easily accomplished, yet the blood poured forth in streams from the mouth. Inspection clearly revealed the scarlet arterial-hæmorrhage ebbing from the alveolus. This consequence can but be accounted for in that the inferior dental canal was located high and the dental artery torn off at its juncture with the inferior alveolar artery. With the upper wisdom tooth matters are such that immediately above its roots the palatine artery arises from the pterygo-palatine artery. A rupture or injury to this artery will result in a colossal hæmorrhage.

Aside from the arterial bleedings which are naturally very difficult to quell, it still not infrequently occurs that post-hæmorrhage results from comparatively simple wounds. At the large clinic of the Berlin University Dental Institute, post-hæmorrhage

occurs about once in every month, or of 1,000 patients one post-hæmorrhage. There are various remedies recommended to allay bleeding. An old method is to employ the extracted tooth as a plug. Yet this procedure is not in strict harmony with present knowledge of asepsis. The remedies which accelerate hæmostasia are alum, tannin, acetate of lead, and a solution of ferric chloride. However, liquor ferrum is the remedy most frequently employed, although its disagreeable effects (caustic) make it necessary to use it but sparingly. Chromic acid, whose caustic effects are still more decided, is seldom used. We employ chromic acid still to allay the bleeding after extirpations of sarcomatous conditions. In this case the caustic effects are desirable. One should always attempt to still the after bleeding by inserting common cotton; in most instances the hæmorrhage will be sedated. Should this not be the case there is always time to use the solution of iron. In stubborn cases of bleeding we have employed the following with satisfactory results. Bathe the alveolus with iron applied on cotton. Then shape a small plug of soft gutta-percha; fill the socket with plaster of paris and insert the plug. The entirety soon hardens and the hæmorrhage usually subsides.

AN OLD ADVERTISEMENT.—A rather curious advertisement which appeared in the *Times* of January 1, 1795, is given in a recent issue of the *Strand Magazine*. It runs as follows:

Change of Residence.--Mr. Dechemant, surgeon and dentist, royal patentee and inventor of the new mineral paste teeth, which are incorruptible, without smell, and approved of by the Society of Medicine, as well as by the Academy of Science of Paris; informs the public that he has taken, for the convenience of his profession a large house, No. 1, Frith Street, Soho, where there is a double staircase and apartments conveniently arranged for those who desire to be seen. Mr. Dechemant may be consulted at home from 11 till 3 o'clock. He will give gratis a dissertation on the advantages of his new teeth in which are inserted the different approbations that his discovery has merited from the learned of Europe. The number of people he receives at home does not permit him to visit out of doors. As some persons have hitherto imagined that Mr. Dechemant has no other profession than that of making mineral paste teeth he begs leave to inform the public that he not only practises all that concerns the art of a dentist, but likewise in all diseases of the mouth, and with the greatest advantage, having practiced both medicine and surgery before he made his present discovery.—*Jour. Brit. Dent. Ass'n.*

Letters.

MORE ENCOURAGING LETTERS.

BOSTON, July 8, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—I am at last converted to the DIGEST. I wish to say that I realize the great work you have done in the Protective Ass'n. I believe our liberty has been brought about by your activity and generous attitude toward your brother dentists.

Yours truly, G. P. WIKSELL.

BOSTON, July 5, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—I have read your notice to the members of the Dental Protective Association, and in reply would say, that I feel I have assisted in influencing many members to join the same and shall continue to do so. And to prove my appreciation of the inestimable value of your efforts for our profession, I for one will not feel otherwise than grateful in adding another ten dollars, if you deem it best to assess me, if for no other purpose than to show my feelings towards you for what you have done in the past. Respectfully yours, W. E. PAGE.

LOS ANGELES, CAL., May 6, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—April DIGEST at hand, and editorial on "Criticism versus Deeds" noticed. If I have been at fault I hasten to correct it, and to tell you how much I have appreciated the self-sacrificing interest you have shown in your work in the Protective Association. I appreciate it more than you can imagine —often when seeing a notice of your having been in some city in the interests of the Association we have spoken of it, and privately if not publicly have expressed our gratitude for your having lifted such a load from us. It would be a good thing if those fellows who give no help, yet reap the benefits, could in some way be made to feel the consequences of being out in the cold.

Very truly, J. D. MOODY.

DANVILLE, VA., July 18, 1895.

To the Editor of the Dental Digest,

DEAR DOCTOR:—Enclosed please find subscription to DIGEST. I have done *nothing* myself, but have been with you in this move all along. If this whole matter could be put before every local, state, and national association in the United States by *word of mouth*, you would soon have the whole profession with you. I shall be glad to help you in any way I can. Yours very truly,

E. P. BEADLES.

LETTER FROM NEW YORK.

NEW YORK, Sept. 15, 1895.

To the Editor of the Dental Digest,

MR. EDITOR:—Pictorial literature is the fad now; it is seen in almost every line of expressed thought. Not many years ago it was predicted that our daily press would in time teem with it—could anything be more fully fulfilled? From childhood picture-gazing was the delight of juvenile life, and mark the contrast between fifty years ago and now. To-day it is almost a perfected art, both in line and color. But little of this has crept into our journalism, save a few attempts of "itemized pathology" that made us all sick. Personal ambition has lent a little encouragement to facial pictorialism, but it died an early death. We notice an attempt by the Ohio Journal for August, and our opinion of it is that it was very modestly displayed. More of it would be acceptable. For instance, in connection with an article that really has some merit, let the face of the author be added to it. There is quite a little interest attached to the identity of men that have often figured creditably before our bodies, and we have many times heard it favorably commented upon in this wise, "We like to be familiar with our active practitioners." We think it has crept too much into the minds of some—because of instances of bombastic display—a distaste for seeing the faces of "living men," yet "living pictures" are much in demand. We voice the thought of many good and wise men, "Give us oftener the faces of our *working* men." Who will lead off in a creditable line of work in this direction? We predict a helpfulness to the journal that does it tastefully and discreetly. Let us become more familiar with the faces of those who are really professional.

Political alchemy is in demand. We of course are not in the secret—the real animus that floated out the "idea" of chemical laboratory in connection with society movements in New York during the last season. Money was declared in the open to be plenty, it was brains that was in demand. It turns out that politics are in a ferment and there does not seem to be anything to harmonize. Since the Hornets hived at the Park, rumor is busy —the henchman is not at ease. Possibly the object made of the Tammany Tiger last autumn has made an entering wedge for more wisdom. Rumor has it that not a little indifference has been noticed regarding the material that has been added to the Odontological Society of New York City. It is asked, will the sapling stand the unusual strain that has been brought to bear upon the original structure? Stomatology is another trial. We were told lately, by a good and true man, that it was believed that Philadelphia had put a test upon their former society that it would not be able to meet—"it is virtually dead now."

According to the editorial in the August *International*, our American profession will be ultimately merged into the specialty of medicine, it being the legitimate result, but it will lose all that has made American dentistry a power in the world. My! My! what an admission. Now let someone tell us what we are to gain. This does not look like true progress. This tells us that human ability can never bring us to the perfect result. We believe that this old and much-abused world is to be brought back to its former paradise, and then right-doing will be the common act of man instead of the uncommon. Then, and not until then, will mankind become unselfish.

In connection with Dr. Clowes we have learned this fact, that the first time tin was found valuable in connection with amalgam was in 1845. He had occasion to fill the anterior proximal surface of a molar, and the posterior proximal surface of the adjoining bicuspid. It was his custom to fill the surface that would be in sight with tin, and the opposite with amalgam, first filling with amalgam and finishing, so that in putting in the tin filling he would not come in contact with soft amalgam and thus amalgamate the tin. However this theory was exploded when, because of the patient's lack of time, the Doctor had to deviate from his custom and bring the tin in contact with the soft amalgam, and on

seeing the patient a few days afterward, he found that the tin surface had hardened, and that the "horrid block" surface, which had always been associated with amalgam, was not present. He, in common with all who used amalgam, had been met by the denunciation of that "black amalgam," yet it did save many otherwise worthless teeth. At some later date, which we do not possess—cannot some one give the year?—Dr. Hunter of Cincinnati, of continuous gum-fame, conceived the idea of combining tin with the amalgam alloy by heat. Altogether this is an interesting note of the history of our progress.

"Malocclusion is soon to become a much noticed subject. The article by Dr. Barker in the August number of the *Review* is worthy of studious attention. Dr. Bonwill has not unduly emphasized his thoughts regarding the laws that govern articulation. It is to become a subject of large consideration in the future; we do not think we can say the near future, for we are doubtful that we have many who can discuss it, yet an attention will gain more or less knowledge for us as the days go on. The importance in the arch of a single tooth will become italicized some day, and practitioners will not so commonly allow themselves to be so ruthless in removing teeth. Dr. Davenport, of Paris, is on record with a shocking display of the wicked and thoughtless havoc made by indiscriminate extraction. We have been much impressed to see how much malocclusion has to do with inducing pyorrhea. We have quite lately had a crucial illustration which has caused us much thoughtfulness during many sleepless hours. Since then we have been more alert to be critical in our examinations of cases in our hands. Now we have a case that came through the hands of a prominent dentist in another city, and it it is a marked one for malocclusion, pressing the superior incisors apart from the laterals and causing much discomfort. The name of such cases is legion.

Larger and more momentous subjects are creeping into the arena for our earnest attention. Dentistry is a far grander calling than hundreds of practitioners regard it. This emphasizes the sacredness of dealing with the human body. *How many are really fitted for the responsibilities that face them in our calling?* Do we not belittle ourselves in much which engages the attention of our professional gatherings? Cordially,

M. A. G.

The Dental Digest.

PUBLISHED THE

TWENTIETH DAY OF EVERY MONTH.

Editorial.

HONEST BUSINESS METHODS.

There is no one thing in life which is more desirable than honest and truthful business transactions. When an individual or firm establishes the principle of fair dealing, it is always an attractive feature, and is bound to yield a good reward. This being such a self-evident fact, it seems strange that we so often find business firms losing sight of this important principle, and adopting methods which come under the head of cunning and shrewd practice. Much of this is done under cover, or else reasons are given and made prominent, when in reality they are not the real cause. This is, we think, more true of corporations than of individuals, for the latter will band together into a firm and then will adopt methods which they would feel ashamed to practice individually, thinking that in some way the deception will not be seen, or that no one will know who is responsible for it. Such practices are very common in these various business combinations, and the firms with whom the dental profession have to deal are not exempt from them, which will account for the lack of confidence manifested towards them. The dentists would trust and respect them more if, when they make a reduction in the price of an article, they would state the facts, viz.—that they do it to wipe out competition, instead of saying that, "In accordance with our usual custom of reducing prices of our manufactures as fast as lessened cost of production will warrant it, we now have the pleasure of announcing a very considerable reduction, etc." The former statement would be believed, but when they imply that the reduction is made because of their love for the profession and their earnest desire to serve its best interests, no one who has watched the history and

various business methods of these combinations could possibly believe them. If the suggestions herein offered were acted upon, it would go far towards doing away with the adverse criticism and unfriendly feeling now existing among the dentists towards the dental dealers. A word to the wise should be sufficient.

THE FUTURE WORK OF THE DENTAL PROTECTIVE ASSOCIATION.

At a special meeting of the members of the Protective Association, called during the meeting of the American Dental Association at Asbury Park, a committee was appointed to draft an appeal to all members of the Association, asking for their united cooperaton in increasing the membership and in getting all practitioners outside of the Association to join. At this meeting the present litigation in which the Association is engaged was fully explained, also the work yet to be accomplished in order that the profession may be free. The facts there set forth showed that if the Association were to disband, within a year's time patent claimants would be insisting on royalty on numerous things which we are now using, and that these claimants have been deterred in the past only from the fact that the Association stood between them and the profession.

There was also a committee appointed by the American Dental Association to examine the books, accounts and methods of doing business of the Association. The two committees united and reported as follows. To the Dentists of America:—

For several years the American Dental Association has by special vote appointed a Committee to examine the accounts of the Dental Protective Association of the United States. The reports of these Annual Committees are published in the Transactions.

The undersigned, having been appointed the Committee for this year, have carefully examined the books of the Dental Protective Association, with the vouchers for receipts, expenditures and investments.

As the peculiar situation of the Protective Association has made it imperative that full reports of its membership, assets, and

work could not be safely published, and as misunderstandings and misrepresentations of the same have to some extent prevailed, we submit to the dentists of the country for their encouragement and enlarged support of the Association, the following statements which we believe to be true:

1st—That all receipts from membership fees have gone to the treasurer of the Association, the Hon. Lyman J. Gage, President of the First National Bank of Chicago, and that all payments have been made by him upon the order of the Executive Committee of the Association, Dr. J. N. Crouse, Chairman, and exclusively for the legitimate purposes of the Protective Association.

2nd—That the Dental Protective Supply Company is a separate corporation, chartered by the State of Illinois and owned by stockholders who have subscribed and paid for their stock, and that none of the monies of the Protective Association have been used in the business of the Supply Company.

3rd—That we believe that the management of the Protective Association has been wise, judicious and particularly economical; the chairman, Dr. Crouse, having given a large part of his time for eight years to the work, and without any remuneration.

4th—That of the receipts from the membership fees, two-thirds has already been expended, and the remaining one-third is invested in a loan upon real estate secured by mortgages.

5th—We believe this amount must be very largely increased to carry to a successful issue the suits now on hand, and for further protection of the profession from other unjust claims.

6th—In view of the great benefits which the Association has been to every individual in the profession, and of the present needs of the Association, we ask every dentist in the country, who is not a member, to join the Association and thus do his part in securing the protection shared by all.

H. A. SMITH,
L. D. SHEPARD,
L. L. DUNBAR,
HENRY W. MORGAN,
H. B. NOBLE,
Committee of the American Dental Association.

We believe the above to be true and we urgently request a prompt and general response.

Geo. H. Cushing,	Frank Abbott,	E. T. Darby,
L. P. McManus,	C. N. Peirce,	Edward S. Gaylord,
J. S. Cassidy,	S. G. Perry,	Geo. J. Friedrichs,
Alonzo Boice,	Thomas Fillebrown,	A. O. Hunt,
Corydon Palmer,	J. D. Patterson,	H. J. McKellops,
Thos. E. Weeks,	D. D. Smith,	Garrett Newkirk,
C. N. Johnson,	E. D. Swain,	Edward C. Kirk,
James Truman,	Louis Ottofy,	M. W. Foster,
Chas. A. Meeker,	Meyer L. Rhein,	Louis Jack,
B. C. Nash,	Oscar Adelberg,	Grant Molyneaux,
S. C. G. Watkins,	R. M. Sanger,	Chas. C. Crittenden,
Wm. Donnaly,	W. F. Fundenberg,	V. H. Jackson,
W. W. Walker,	T. W. Brophy,	A. H. Peck.

Now, Doctor, the sitation is briefly this—we must have added funds to pay bills and continue the litigation, as we have expended all of the available money, except what is loaned out for a term of years on real estate security. The money for our immediate needs must be raised in one of three ways: by selling the mortgage, which would have to be done at some sacrifice and would exhaust the funds of the Association, and end, therefore, any farther work, as I should certainly not feel it my duty to assume the responsibility of paying the bills; or, we could assess the members on their pledged obligations; or, what is better, and what I suggested in my letter in the June number of the DIGEST, is to increase the membership.

At the meeting above referred to it was voted unanimously that the Association must not disband. Accordingly I was requested to have printed as soon as possible a list of the membership in each state and to furnish the same to the members of the Association in each state, in order that they may be able to organize and do the work necessary to carry out the appeal of the above committee. I am at work apon the lists and will send them just as soon as they can be gotten ready. The present membership can easily do this work of getting the balance of the profession to join with us. This once accomplished our independence and freedom from numerous threatened abuses are assured.

J. N. CROUSE.

WHAT WILL OUR FUTURE BE?

As there are now thirty-eight recognized colleges, according to the report of the Dental Faculties Association, which are about to open their doors to new students, the question arises, who should be admitted? As we showed in a former editorial, that no part of the profession has anything to say as to who shall enter its ranks, except the faculties of the colleges, it is not out of place for us to raise the above question. We are aware that, by the rules of the Association, certain literary qualifications are required of an applicant. However, this is not enough, as the practice of dentistry requires peculiar qualifications which are rather distinct from any other occupation in life. A young man may be bright, a good student, and well grounded in the classics, and yet an attempt to make a dentist of him would destroy his usefulness in life, make him a detriment to the community in which he practiced, and not a credit to the dental profession. Therefore, the first six weeks of the college course should be spent in finding out who are properly qualified, by nature as well as training, to be dentists; and those who are not fit should have their fees refunded, and should be persuaded to select a more suitable calling in life. In short, the "plucking" should be done at the beginning of the college course rather than at the end.

Notices.

EXECUTIVE COMMITTEE OF SOUTHERN DENTAL ASSOCIATION.

W. H. Richards, Knoxville, Tenn., chairman; E. B. Marshall, Rome, Ga.; W. R. Clifton. Waco, Tex.; Gordon White, Nashville, Tenn.; N. E. Turner, Raleigh, N. C.; S. B. Cook, Chattanooga, Tenn.

DENTAL SOCIETY OF SOUTHWESTERN MICHIGAN.

The semi-annual meeting of this society will be held at St. Joseph, Oct. 8 and 9, 1895. A good program has been arranged, and a very interesting and instructive meeting is expected. All dentists in Michigan and adjoining states are cordially invited to attend. For further information or copies of program address Dr. S. M. White, Benton Harbor, or Dr. E. I. Backus, St. Joseph.

E. I. BACKUS, Sec'y.

SOUTHERN DENTAL ASSOCIATION.

The next annual meeting of the Southern Dental Association will be held in Atlanta, Ga., commencing the first Tuesday in November. Arrangements are being made for the greatest meeting in the history of the "Southern." The Cotton States and International Exposition will be in progress, and railroad rates will be very low. All friends will be given a hearty welcome.

E. P. BEADLES, Cor. Sec'y.

DENTAL ASSOCIATION OF NEW SOUTH WALES.

The third annual meeting was held at the Australia Hotel in Sydney, Aug. 2, 1895, and was well attended. The president, Dr. Burne, occupied the chair, and stated, on behalf of the council, that great hopes were entertained of the Dental Bill being brought before Parliament and becoming law during the ensuing year. The balance sheet showed a credit balance of $365 in hand. It met with general approval. The following officers were elected for the year 1895-6:—President, Dr. Burne; vice-presidents, Messrs. H. Paterson and S. Chaim; hon. treasurer, Dr. W. T. Halstead; hon. secretary, Mr. H. Taylor; committee, Dr. A. Hinder, Messrs. C. C. Marshall, F. G. Hollway, J. Darton, H. S. Newton, E. A. Gabriel, and B. Ruse; auditors, Messrs. Corbett and Hebblewhite. A vote of thanks was accorded to the president, the hon. secretary and the chairman.

H. TAYLOR, Hon. Sec'y.

CLINIC BY ALUMNI ASSOCIATION OF C. C. D. S.

The great success of the clinic conducted by the Alumni Association of the Chicago College of Dental Surgery at its last January meeting, has determined the association to repeat that program, considerably extended, at the coming January meeting, making a two days session instead of one, and enlarging upon the social features so thoroughly appreciated last winter. The spacious rooms and up-to-date equipment makes the College building an ideal place for clinics of all kinds, and they will be arranged so as to be instructive and satisfactory, not to a few only, but to all in attendance. Extended notice will be given later.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The twelfth annual meeting of the National Association of Dental Faculties was held at the Ocean Hotel, Asbury Park, N. J., commencing Saturday, August 2, 1895; the president, Dr. Frank Abbott, in the chair. The entire membership of the Association was represented at this meeting as follows:

University of California, Dental Department—L. L. Dunbar.
University of Denver, Dental Department—R. B. Weiser.
Columbian University, Dental Department—J. Hall Lewis.
National University, Dental Department—J. Roland Walton.

Southern Medical College, Dental Department—Frank Holland.
American College of Dental Surgery—Louis Ottofy.
Chicago College of Dental Surgery—Truman W. Brophy.
Northwestern College of Dental Surgery—J. A. Whipple.
Northwestern University Dental School—George H. Cushing.
Indiana Dental College—George Edwin Hunt.
University of Iowa, Dental Department—A. O. Hunt.
Louisville College of Dentistry—Francis Peabody.
Baltimore College of Dental Surgery—M. W. Foster.
University of Maryland, Dental Department—F. J. S. Gorgas.
Boston Dental College—J. A. Follett.
Harvard University, Dental Department—Thomas Fillebrown.
Dental College of the University of Michigan—J. Taft.
Detroit College of Medicine, Dental Department—G. S. Shattuck.
University of Minnesota, College of Dentistry—Thos. E. Weeks.
Kansas City Dental College—J. D. Patterson.
Western Dental College—D. J. McMillen.
Missouri Dental College—A. H. Fuller.
University of Buffalo, Dental Department—W. C. Barrett.
New York College of Dentistry—Frank Abbott.
Ohio College of Dental Surgery—H. A. Smith.
Western Reserve University, Dental Department—H. L. Ambler.
Pennsylvania College of Dental Surgery—C. N. Peirce.
Philadelphia Dental College—S. H. Guilford.
University of Pennsylvania, Dental Department—James Truman.
Meharry Medical School of Central Tennessee College, Dental Department—G. W. Hubbard.
University of Tennessee, Dental Department—J. P. Gray.
Vanderbilt University, Dental Department—Henry W. Morgan,
Royal College of Dental Surgeons of Ontario—J. B. Willmott.

The following colleges were admitted to membership:

University College of Medicine, Dental Department, Richmond, Va.—L. M. Cowardin.
Atlanta Dental College—Wm. Crenshaw.
Birmingham Dental College—T. M. Allen.
Cincinnati College of Dental Surgery—G. S. Junkerman.
Cleveland University of Medicine and Surgery, Dental Department—S. B. Dewey.

The following, laid over under the rules from last year, were adopted as here given;

Resolved, That in view of the recommendation of the Executive Committee that this association now in session shall require that all colleges, members of the association, shall extend the term of the session of 1896-97, and of succeeding sessions, to not less than six months each.

Beginning with the session of 1895-96, no college shall be permitted to retain membership in this association if it is conducted or managed, in whole or in part, by any person or persons who do not practice dentistry in accordance with well recognized and generally accepted forms, generally known as den-

tal ethics, or if they are owned in whole or in part by men or women who are engaged in disreputable dental practice, or if any college have upon its list of trustees, the faculty, demonstrators, or in any other capacity, any one who does not practice dentistry in accordance with the principles above mentioned. This shall refer to dentists only.

Beginning with the session of 1896–97, the examinations conducted by the colleges of this association shall be in the English language only.

The other resolutions which came over from last year for action were laid on the table.

A resolution was adopted requiring each college holding membership in the association to file with the secretary sixty days before the next meeting a detailed statement of its equipment and facilities for teaching; all new applicants to file a similar statement with their applications. The secretary was instructed to have blank forms printed for the purpose and forwarded to the various schools.

The report of the special committee on preliminary examinations was received and the committee discharged.

The following resolutions offered by Dr. Patterson were adopted:

Resolved, That students in attendance at colleges of this association are required to obey the laws regulating the practice of dentistry in the various states, and failing to do this, shall not again be received into any of the colleges of this association.

Resolved, That when a college of this association has increased the cost of tuition fees, no student shall be received at the former fee except those who have matriculated at such college prior to such action.

The Committee on Text-Books reported in favor of the adoption as text-books by the colleges of the association of two works, namely, "Dental Anatomy," by G. V. Black, M. D., D. D. S., and "Methods of Filling Teeth," by Rodrigues Ottolengui, M. D. S. The report was adopted.

The following lie over until next year:

Amendment to the rules offered by the executive Committee:

That each college be allowed two delegates, and be limited to one vote for each school.

By Dr. Peabody:

That when a student who has matriculated within the time limit in any recognized college shall, from sickness, death or sickness in family, lack of funds, or other reasonable cause be compelled to retire from that college before the expiration of the term, he may be allowed to make up the deficit of time in the same or any other college (provided he enter at a date not later than that on which he retired), be examined by the last college entered, and if the examination be up to the requirements of that college, and otherwise satisfactory, may be given tickets for advanced standing or graduated, as the case may be.

By Dr. George Edwin Hunt:

Amend the last portion of Rule 3 to read as follows:

"Except on such occasions as would have been imposed in the original school, and these to be ascertained by conference with the school from whence he came."

By Dr. Gray:

Moved that when students from one college apply for advanced standing to any other college of this association it shall be the duty of the Dean or Secretary of the latter college to ascertain by correspondence with the college from which the student comes if there be any objection to his acception.

By Dr. Gray:

Resolved, That all colleges of this association shall charge not less than one hundred dollars tuition each session.

By Dr. A. O. Hunt:

Resolved, That a student who is suspended or expelled for cause from any college of this association shall not be received by any other college during that current session.

In case the action of the first college is expulsion the student shall not be given credit at any time for the course from which he was expelled.

Any college suspending any student shall at once notify all other members of this association of its action.

The following resolution offered by Dr. Ottofy was adopted:

Resolved, That the endorsement of applications for membership, made during the coming year, shall be based upon definite knowledge obtained by a careful examination of the methods of teaching, the equipment, and the efficiency of the Faculty.

The report of the committee on revision of the constitution, laws, and codified rules was considered section by section, and laid over for final action next year; and the committee, consisting of Drs. Louis Ottofy, A. O. Hunt, and J. D. Patterson, was continued.

The following were elected officers for the ensuing year: S. H. Guilford president; Geo. H. Cushing, vice-president; Louis Ottofy, secretary; Henry W. Morgan, treasurer; J. Taft, Thomas Fillebrown, B. Holly Smith, executive committee; H. A. Smith, A. O. Hunt, and T. W. Brophy, ad interim committee.

The newly elected officers were installed and the president announced the standing committees as follows: J. A. Follett, L. L. Dunbar, Geo. Edwin Hunt, C. N. Pierce, and T. W. Brophy, committee on schools; J. D. Patterson, A O. Hunt, J. B. Willmott, T. E. Weeks, and J. P. Gray, committee on text books.

Adjourned to meet at the call of the Executive Committee.

News Summary.

BUCCAL DRYNESS.—When the mouth is dry from administration of opium or any of its alkaloids, give the patient lemonade or other acid liquid. The salivary glands, yielding an alkaline secretion, are stimulated to greater activity by the presence of an acid substance.—*Nursing World.*

A METHOD OF HARDENING ALUMINUM.—According to *Invention*, the hardness which aluminum is said to lack can be imparted to it by the addition of

chromium. Certain precautions have to be taken in alloying the two metals, owing to the difference in their fusing points. If electrolysis is employed for this purpose, one or another of the known methods can be used, and the alumina, salts of alumina, cryolite, etc., treated direct with a determined quantity of granulated chromium, or chromium in any other suitable condition, or with the salts or oxides of chromium. Finally, an ingot of chrome aluminum is obtained which can subsequently be treated and transformed by known methods. The aluminum is said to be rendered as hard as chrome steel by this treatment.

FIBRO-MYXOMA OF THE TONGUE.—At a recent meeting of the Royal Academy of Medicine in Ireland a somewhat rare tumor of the tongue was exhibited by Professor M'Weeney. It was encapsuled, translucent, yellowish in color, and was about the size of the kernel of a hazel nut, and occurred in a man 23 years of age, who had no history of syphilis, either congenital or acquired. Histologically the growth proved to be a fibro-myxoma.

CURVED TEETH.—It is, of course, well-known that should anything prevent the normal wear of curved teeth having persistent pulps, they grow into a complete circle, the point penetrating the bone of the jaw close to the root of the tooth. In the interesting and valuable work on Mammals, by Flower and Lydekker, it is stated that the Fiji Islanders avail themselves of this circumstance to produce one of their most valued ornaments—a circular boar's tusk—the upper canines being extracted, the lower ones are allowed to grow to the desired form.—*Dental Record*.

DRAINAGE TUBE THROUGH AN ARTIFICIAL TOOTH IN ALVEOLAR ABSCESS.—In the treatment of alveolar abscesses the task is usually simple where there is a fistulous opening. The forcing of an escharotic through the end of the root and out through the fistula is almost a sure cure without further treatment in ordinary cases. However, there are some which are much more difficult, and require a different line of treatment. This has reference to cases in which there is no fistulous opening, and the only drainage is through the tooth into the mouth. I have in mind a case of this kind, presented seven or eight years ago, where it was necessary to keep the root open, and being a front tooth with a porcelain crown, the patient was unwilling to be without a tooth. I had therefore to use an ordinary pivot tooth, grinding it out so that a tube, extending from the root into the mouth, could be cemented in it. The drainage was thus kept open, and after some months' treatment the abscess was cured and the tooth could be permanently closed up. In another case I secured drainage by means of a tube cemented between a porcelain facing and gold backing, open, as in the other case, from the root into the mouth. In this way the artificial crown need not be disturbed, as the root can be treated through the tube as often and as long as necessary. C.

Obituary.

DR. T. H. CHANDLER.

Thomas Henderson Chandler, A. M., L.L. B., M. D., D. M. D., dean and professor of mechanical dentistry in the Dental Department of Harvard University, died at his residence, 72 St. Stephen St., Boston, Mass., on Aug. 27, 1895, aged seventy-one years. He had been sick for some time, so his death was not wholly unexpected.

His early education was obtained in the old Eliot School, from which he was graduated at the head of his class, with the Franklin medal. He next entered the Boston Latin School, graduating four years later as Franklin medallist and class leader. He entered Harvard College with honors, obtained several prizes for excellence in his studies, and graduated as a Phi Beta Kappa man and president of the Hasty Pudding club. He then entered the Harvard Law School, graduating in the class of 1853.

As his eyes troubled him he applied for the post of usher in the Boston Latin School, and obtained it through his high scholarship and his testimonials from the president of Harvard College. In 1858 he began the study of dentistry, a science then almost in its infancy, and some years later studied medicine, but retained dentistry as his specialty. On the organization of the Harvard Dental School in 1869 he was offered the post of adjunct professor of mechanical dentistry, and in 1872 was appointed professor with the degree of D. M. D., *honoris causa*. The death of Dr. Thomas B. Hitchcock in 1874 left the school without a dean, and Dr. Chandler was unanimously elected to fill the vacancy. During the twenty-one years he held this post, never until the few months preceding his death did he fail in attending a single meeting of the faculty or miss fulfilling a single duty connected with the office. The students all liked him, and his associates all respected him, for he was a man of the most unobtrusive and retiring disposition, which was often carried to the pitch of diffidence.

His literary work consisted chiefly of papers for the different medical and dental journals: an exhaustive article on "Thumbsucking in Childhood and its Results" was translated into all the European languages and obtained a European reputation for its author. Translations of two large works on dental caries, one by Leber & Rottenstein, and the other from the French of Magitot were the chief events of his literary career. In this age of push and hurry it can be said of few persons that their work was done slowly, thoroughly and to last. Dr. Chandler's ambition was not to be a shining light, but to use his best judgment, his utmost skill and the greatest care in every task, however trivial, that he undertook. He was a good husband, a kind father, a true citizen and an honest man.

NOTICE.

TO OUR SUBSCRIBERS.

If you are interested in this movement, and think that the DIGEST is a good journal, won't you get one other to subscribe for it? We will send him the journal the last three months of '95 and the whole of '96 for one year's subscription. We have two objects in view: to band the dental profession closer together by giving the Protective Association an organ, and to furnish the dentists with a readable journal, which is something that they have not got at the present time. An early renewal of your own subscription will be appreciated.

TO NON-SUBSCRIBERS.

If you are a member of the Protective Association, should you not, in view of what the Association has done for you, subscribe for its official organ, the DIGEST? If you are not a member, we think that you should economize your time by taking the journal for busy dentists, the DIGEST. No other journal contains so much readable matter, and we expect to improve it still more as we go on. We will send you the journal for Oct., Nov., and Dec., '95, and for the whole of '96 for the price of one year's subscription, $2.00, in advance.

EUTHYMOL

To any Doctor of Dental Surgery who will enclose to us his professional card, we shall be glad to send a trial package of Euthymol free of charge.

A few drops of Euthymol in half a glass of water removes all disagreeableness from the mouth and leaves a delightful sense of cleanliness.

Whitens the Teeth.
Sweetens the Breath.

Offensive odor of the breath may be overcome by the habitual use of Euthymol. Have patient add a teaspoonful to half a glass of water and gargle thoroughly; and take internally three or more times daily 20 to 30 drops in a little water.

PRICE TO DENTISTS:

$7.50 net Per Doz. Pints.

PER GALLON, $4.50

(IN HALF-GALLON CONTAINERS).

PARKE, DAVIS & CO.,

DETROIT, NEW YORK, KANSAS CITY, U. S. A.
LONDON, Eng. WALKERVILLE, Ont.